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# SESSIONAL PAPERS

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VOLUME 6.

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SECOND SESSION of the FIFTH PARLIAMENT

OF THE

DOMINION OF CANADA.

---

SESSION 1884.

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VOLUME XVII.

UNIVERSITY OF OTTAWA  
DOCUMENTS OFFICER  
GOVERNMENT RELATIONS  
UNIVERSITY OF OTTAWA

SESSIONAL

LIST OF SESSIONAL PAPERS

VOLUME XXVII

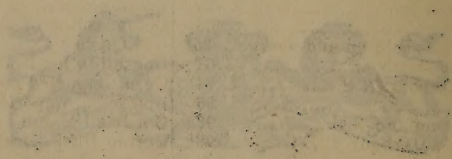
ARRANGED ALPHABETICALLY

SECOND SESSION OF THE PARLIAMENT

PRINTED BY MACLEAN, ROGER & Co., WELLINGTON STREET, OTTAWA.

PARLIAMENT OF CANADA

SESSION 1884



VOLUME XXVII

## LIST OF SESSIONAL PAPERS.

VOLUME XVII.—SESSION 1884.

ARRANGED ALPHABETICALLY.

A	No.		No.
Accidents on Canadian Railways.....	35	Calgary, Supply Farm No. 20, near.....	82
Accidents on I.C.R.....	53c	Callander, Railway from Gravenhurst to.....	121c
"Adeline," Seizure of tobacco from.....	71b	Canada, G.T.R. decrying credit of.....	116
Adulteration of Food.....	3	Canada, Life Saving Stations in.....	146
Agreement with British Columbia.....	15	Canada Temperance Act in Halton County, 30 & 30c	
Agricultural implements, Duties on.....	36	Canada Temperance Act in Prince Co., P.E.I.....	30d
Agricultural Interests, Expenses of Committee on.....	36a	Canadian Loans.....	39, 39a
Agricultural lands.....	25b, m & n	Canadian North-West Land Company, 31k-4, & 31n	
Agricultural Statistics, Manitoba and N.W.T.....	36c	Canadian Pacific Railway.....	31, 31bb, 116a
Agriculture.....	36 to 36c	Canadian Pacific Railway, guarantee by Government.....	31, 31c, 31i
Agriculture, Annual Report.....	14	Canadian Pacific Railway, Map of, &c.....	31p
Amoro, Roger, Arrest of, &c.....	112	Canadian Pacific Railway, shareholders.....	31u
Amherstburg Post Office and Custom House.....	93, 93b	Canals.....	3, 115, 153
Annapolis & Digby R'y., Subsidy to.....	21f	Canal Statistics.....	3
Antigonish Public Building.....	95	Cape Traverse, Winter crossing at.....	126
Appointments, Civil Service.....	33a	Cape Tormentine, Winter crossing at.....	126a
Appropriation Accounts.....	6	Caron, C., Fishery Overseer.....	132a
Arbitrators, Dominion.....	57 to 59, 83, 130	Cavalry School, Number of men comprising.....	108
Archives, Report on Historical.....	14	Census and Statistics.....	41b
Atlantic & North Western Railway, 31h, 31k-4, 31n		Chabot, Charles, Petition of.....	57
Audet, Alphonse, Appointment of.....	127	Chabot, Louis, Petition of.....	58
Auditor-General's Report.....	6	Chapleau, S. J. St. O.....	103
<b>B</b>		Civil Service appointments and promotions.....	33a, 47
Baie des Chaleurs, Caraque & Shippigan Railway, Subsidy to.....	21f	Civil Service employes.....	33
Banks, shareholders of.....	32	Civil Service Examiners' Report.....	33b
Baptisms, Marriages and Burials.....	87	Coal carried by Intercolonial Railway.....	64b
Batteries, A, B and C, No. of men comprising.....	108b	Coal, Duty on.....	61
Blaikie, J. M., Claim of, against I.C.R.....	53a	Coal exported.....	64a
Bond, Grinding in.....	73	Coal Lands in N.W.T.....	25p
Bonds and Securities.....	34	Coal (Nova Scotia) exported to U.S.....	61
Boundary Award, Ontario and Manitoba.....	145	Coal Oil Barrels, Seizure of.....	71a
Bounty on manufactured iron.....	75	Colonization, Land for.....	25j & 25k
Bounty to fishermen.....	66	Commissioners, &c., Expenses of.....	22 & 22a
Bow River, Timber limits sold on and near.....	25l	Commission, Intercolonial Railway.....	25f, h, m & n
Brazil, Reciprocal Trade with.....	67	Commission of the Governor General.....	77a
Breakwater, Indian Harbour, N.S.....	74	Commissions of the Lieutenant-Governors of Quebec.....	77 & 77b
Breakwater, Ingonish.....	96	Consolidation Dominion Statutes, Report on.....	38a
Breakwater, Point Escuminac, N.B.....	96a	Corn, imported and exported.....	63
Breakwater, St. Peter's Harbour, P.E.I.....	96b	Cornmeal, imported and exported.....	63
"Britannia," Loss of.....	133	Corwall Canal.....	153
British Canadian Loan and Investment Co.....	55	Cotton Duck, Drawback on.....	48d
British Columbia Agreement.....	15	County Gaols, Cost of conveying prisoners.....	24
British Columbia, Dominion employes in.....	15a, 15b	Courts, Vice-Admiralty.....	26 & 26a
British Columbia, Troubles with Indians in.....	79a	Credit of Canada decryd by G.T.R.....	116
British Columbia waters, H.M. Ships of war in.....	97	Credit Valley Railway.....	31h
Burials, Baptisms and Marriages.....	87	Criminal Statistics for 1882.....	14
Burland & Co., G.B.....	138	Custom Houses.....	93 to 93c
		Customs Duties (U.S.) on hay from Canada.....	69a
		Customs laws, and regulations concerning distilling.....	69

D	No.	F	No.
Damour, D., Dismissal of.....	44	Factory Bill, proposed .....	86
Deposits in the Banks of Dominion Money ..	28	Finance, Mission of Minister of, to England ..	39a
Derby Station to Indian Town, Intercolonial Railway Branch, Subsidy to.....	21f	Fines and Seizures at Ports of Entry.....	71, 71a
Deserters from U. S. Army.....	78	Fines exacted and how disposed of.....	71
Dewdney, Lieutenant-Governor, N.W.T.....	109	Fire Insurance, Abstract for 1883.....	11
Distillers, United States National Assoc'n ..	69	Fish Creek, Supply Farm No. 20.....	82
Distilling, Customs Laws and Regulations concerning.....	69	Fisheries .....	66 to 66b & 67a
Dominion Arbitrators.....	57 to 59, 83, 130	Fisheries and Marine, Annual Report.....	7
Dominion Government, Lithographing for.....	138	Fisheries, Commissioner's Report.....	7
Dominion Lands.....	25 to 25w	Fishermen, Bounty to .....	66
Dominion Money on deposit .....	28	Fishery, Porpoise, Rivière Ouelle. ....	65
Dominion Money spent in the Provinces....	152	Fishing Bounty.....	66
Dominion Statutes.....	38	Fishing, Regulations prohibiting, in Ontario ..	66a
Dominion Steamers .....	45 to 45e	Flour, Duty on.....	61
Dorion, E., Claim of.....	83	Flour exported, Frauds on bonded.....	60
Draining of land in Manitoba.....	111	Flour imported and exported.....	63
Drawback, cotton duck.....	48d	Flour imported from U.S., duty collected on ..	61b
Drawback, exported sugar.....	48 & 48c	Food, Adulteration of.....	3
Drawback, manufactured goods exported....	48b	Fort McLeod, Town site.....	120
Drawback, shipbuilding materials.....	48a & 48d	Fort Osborne, Lease of land at.....	25d
Drill Shed, Montreal.....	88a	Fort Simpson, Troubles with Indians at....	79a
Drill Shed, St. Thomas, Ont.....	88	Fort William Indian Reserve.....	50b
Drummond, and MacLean, Roger & Co.....	136	Frauds on bonded Wheat or Flour exported. ..	60
Duck Islands, etc.....	52	Fraser & Co., D., Claim of, against I.C.R....	53n
Dufferin Bridge, Ottawa.....	37	Free Passes, I. C. & P. E. I. Railways, from 1874 to 1883 .....	53o, 53p
Dumais, Skiffington <i>versus</i> Michaud.....	129	Freight Charges, Duty on.....	68
Dumping Scows, bought or built in 1883 for Government.....	142	<b>G</b>	
Dustan, Mr., Claim of.....	49 & 49a	Galt, Sir A. T., High Commissioner .....	76 to 76e
Duties on Agricultural Implements.....	36	Gosselin, E., Petition of.....	59
Duties on Lumber imported into Manitoba, from 1880 to 1882 .....	61a	Government Herd Cattle in N. W. T.....	154
Duties, Specific and <i>ad valorem</i> .....	36	Government Steam Tugs, etc.....	142
Duty collected on Wheat and Flour im- ported from U.S.....	61b	Governor General, Commission appointing ..	77a
Duty on Freight charges.....	68	Governor General and Staff, Expenses of....	150
Duty on Grain, Flour and Coal.....	61	Governor General's Warrants .....	20
<b>E</b>		Governors, Oaths taken by.....	77 & 77a
Eastern Extension Railway (N.B.).....	53j	Grain, Duty on.....	61
Eastern Extension Railway (N.S.) .....	53 & 53a	Grand Piles to Lac des Iles Railway, Sub- sidy to.....	21f
East Point, P.E.I., proposed Signal Station ..	91	G.T.R. Co., Credit of Canada decreed by.....	116
Electoral Divisions of Manitoba.....	80	Gravenhurst to Callander, Railway from....	21e
Ellsworth, Arrest of, by U. S. soldiers.....	78	Graving Dock at Esquimalt.....	98
Employés in Military Districts.....	23	Great Western Railway Co., Port Stanley ..	94
Employés in Public Works Department....	149	Grinding in Bond.....	73
Erie and Huron Railway, Subsidy to.....	21f	Guarantee to C.P.R. by Government..	31, 31c, 31i
Erie, proposed Harbor of Refuge on Lake ...	128	Guarantee Insurance.....	11
Escheated Lands.....	117, 117a	<b>H</b>	
Esquimalt and Nanaimo Railway.....	81	Halton County, Canada Temperance Act in.....	30 & 30c
Esquimalt Graving Dock.....	98	Hamilton and North Western Railway.....	31h
Esquimalt Naval Station.....	97	Harbour of Refuge on Lake Erie, proposed. ..	128
Essex County, proposed Harbor on Lake Erie, in.....	128a	Hay imported into U.S. from Canada, Customs duties on.....	69a
Estimates, 1884-85.....	2	Health Officers, Public.....	113
Estimates, Supplementary, 1883-84.....	2	Heating Public Buildings, Cost of.....	92
Estimates, Supplementary, 1884-85.....	2	Herd Cattle (Government) in N. W. T.....	154
Estimates, Further Supplementary, 1884-85 ..	2	Herring, Inspection of Newfoundland.....	54
Examination of Mates.....	7	Hicks, E., Claim of, against I.C.R....	53n
Exchange Bank of Canada .....	40	High Commissioner.....	76 to 76e
Expenditure for Sessional Returns.....	42	Historical Archives, Report on.....	14
Expenses and Revenue, I.C.R.....	53b	H.M. Ships of War, British Columbia Coast ..	97
Expenses of Commissioners, etc.....	22 & 22a	Hodge <i>vs.</i> The Queen .....	30e
Expenses of Committee on Agricultural In- terests.....	36a	Home and Indian Farms .....	51
Expenses, Unforeseen.....	15	Hopewell to Alma, Subsidy to railway from ..	21f
Exports and Imports for January and Feb- ruary, 1883 and 1884.....	29b	House of Commons, Officers of.....	33
Exports and Imports, last half 1882 & 1883..	46	Hudson Bay Navigation.....	54
		Hughes, D. J., Judge, Conduct of.....	139
		Huron, Shipping on Lake.....	141
		Huron, Water Lots in Harbours of Lake....	114







# LIST OF SESSIONAL PAPERS.

ARRANGED NUMERICALLY AND IN VOLUMES.

## CONTENTS OF VOLUME A.

CENSUS OF CANADA, 1880-81, Vol. II.

## CONTENTS OF VOLUME No. 1.

- No. 1... TRADE AND NAVIGATION :—Tables of, for the fiscal year ended 30th June, 1883.

## CONTENTS OF VOLUME No. 2.

- 2... PUBLIC ACCOUNTS :—For the fiscal year ended 30th June, 1883.

ESTIMATES :—Of sums required for the service of the Dominion, for the year ending 30th June, 1885.

Supplementary Estimates of sums required for the service of the Dominion, for the year ending 30th June, 1884.

Supplementary Estimates of sums required for the service of the Dominion, for the year ending 30th June, 1885.

Further Supplementary Estimates of sums required for the service of the Dominion, for the year ending 30th June, 1885.

## CONTENTS OF VOLUME No. 3.

- 3... INLAND REVENUE :—Report, Returns and Statistics of, for the fiscal year ended 30th June, 1883.

Supplement No. 1 :—Canal Statistics for the season of Navigation, 1883.

Supplement No. 2 :—Weights and Measures, 1883.

Supplement No. 3 :—Adulteration of Food, 1883.

- 4... INDIAN AFFAIRS :—Annual Report of the Department of, for the year ended 31st December, 1883.

## CONTENTS OF VOLUME No. 4.

- 5... POSTMASTER GENERAL :—Report of, for the year ended 30th June, 1883.

- 6... AUDITOR GENERAL :—Report of, on Appropriation Accounts, for the year ended 30th June, 1883.

## CONTENTS OF VOLUME No. 5.

- 7... MARINE AND FISHERIES :—Report of the Department of, for the fiscal year ended 30th June, 1883.

Supplement No. 1 :—Report of the Chairman of the Board of Steamboat Inspection, Examination of Mates, &c., for the calendar year ended 31st December, 1883.

Supplement No. 2 :—Report of the Commissioner of Fisheries, for the year ended 31st December, 1883.

## CONTENTS OF VOLUME No. 6.

- No. 8... **MILITIA** :—Report on the state of, for the year 1883.
- 9... **PUBLIC WORKS** :—Annual Report of the Minister of, for the fiscal year 1882-83.
- 10... **RAILWAYS AND CANALS** :—Annual Report of the Minister of, for the fiscal year ended 30th June, 1883.
- 10a. **RAILWAY STATISTICS OF CANADA** :—Capital, traffic and working expenditure of the railways of the Dominion, for the year ended 30th June, 1883.

## CONTENTS OF VOLUME No. 7.

- 11... **INSURANCE** :—Report of the Superintendent of, for 1882.
- Fire and Inland Marine Insurance Companies : Abstract Statements of, for the year 1883.
- Life and Accidental Insurance in Canada : Abstract of, for the year 1883.
- 12... **INTERIOR** :—Annual Report of the Department of, for the year 1883.
- 13... **SECRETARY OF STATE OF CANADA** :—Report of, for the year ended 31st December, 1883.

## CONTENTS OF VOLUME No. 8.

- 14... **AGRICULTURE** :—Report of the Minister of, for the calendar year 1883.
- Report on Historical Archives.
- Criminal Statistics for 1882.
- Mortuary Statistics, for the first six months of 1883.

## CONTENTS OF VOLUME No. 9.

- 15... **BRITISH COLUMBIA** :—Agreement made at Victoria, on 20th August, 1883, relative to various unsettled points between the Dominion Government and the Province, together with the contract for the construction of a railway on the Island of Vancouver, and accompanying papers.
- 15a. Return (*in part*) to Order; Statement showing the names, etc., of all employés in the various Departments of the Dominion in British Columbia. (*Not printed.*)
- 15b. Supplementary Return to preceding. (*Not printed.*)
- 16... **PENITENTIARIES IN CANADA** :—Report of the Minister of Justice on, for the year ended 30th June, 1883.
- 17... **LIBRARY OF PARLIAMENT** :—Report of the Librarian. (*Sessional Papers only.*)
- 18... **UNFORESEEN EXPENSES** :—Statement of payments charged to, by Orders in Council, from 1st July, 1883, to date, in accordance with the Act 46 Vic., chap. 2, schedule B. (*Sessional Papers only.*)
- 19... **SUPERANNUATION** :—Statement of name, etc., of each person superannuated, etc., under the Act 46 Vic., chap. 8, sec. 15.
- 19a. Return (*in part*) to Order; Statement showing separately, for each year since the establishment of the Superannuation Fund:—1. The number of persons on the list for the year as entitled to the benefit of the Act. 2. The number superannuated during the year under the Act. 3. The number retired during the year on a gratuity under the Act. 4. The total amount paid into the fund from the beginning by those who were, during the year, superannuated or retired on a gratuity; distinguishing between those whose superannuation was caused by the abolition of office. 5. The number of persons on the list, for the year, who died in the Service;—and 6. The total amount paid into the fund from the beginning by those who, during the year, died in the Service.

- No. 193. SUPERANNUATION :—Supplementary Return, covering time lapsed since preceding order. (*Sessional Papers only.*)
- 19c. Return to Order; Return of the total amount paid into the Superannuation Fund during the time of service by each of those superannuated during the year ended 31st December, 1883. (*Sessional Papers only.*)
- 20... GOVERNOR GENERAL'S WARRANTS :—Statement of, issued since the last Session of Parliament, in accordance with the Act 41 Vic. chap. 7, sec. 32, sub-sec. 2, on account of the fiscal years, 1882-83, and 1883-84. (*Distribution only.*)
- 21... SUBSIDIES :—Return to Order; Return of moneys advanced to New Brunswick, on account of and in anticipation of the subsidy, since January 1st, 1882, etc. (*Not printed.*)
- 21a. Return to Order; Statement of all sums paid by Canada on account or in full of the subsidies voted to the several railway companies mentioned in chapter 25, Act 46 Vic. (1883).
- 21b. Return to Address; Copies of all correspondence, etc., respecting the grant or payment of any subsidies to railways, not already brought down, to date.
- 21c. Return to Address; Statement showing : 1. The names of all railway companies which have made application to the Government or Parliament of Canada for subsidies from 1867 up to this date; 2. The names of the railway companies to which have been granted and paid subsidies by the Dominion Government, from 1867 to this date; 3. The sums paid to each of the said railway companies from 1867 to this date; 4. The length of the said Railways; 5. The names of the Province or Provinces traversed by the said railways; 6. The original amount of the mortgage held by the Dominion on the properties of the Northern Railway Company of Canada; 7. Copy of the Order in Council effecting the discharge of the said mortgage in favour of the said company, the date of the said discharge, and the amount of interest accrued on the said mortgage at the date of discharge; and 8. The amounts paid by the Government of Canada, from 1867 to this date, for the extension of the Intercolonial Railway in the City of Halifax. (*Not printed.*)
- 21d. Return to Address; Copies of all correspondence, etc., not already brought down, in reference to subsidies or grants for Manitoba, the extension of its boundaries, the territory disputed between it and Ontario; its school lands, public lands within the Province, and railway questions affecting the Province.
- 21e. Return to Address; Copies of all correspondence, etc., respecting the construction or subsidizing of the proposed railway line between Gravenhurst and Callander. (*Not printed.*)
- 21f. Papers respecting aid to Quebec and other Provinces and railway subsidies, as follows :—Memorandum respecting the claim of Quebec; Montreal to St. John, Halifax and Sydney; Irondale, Bancroft and Ottawa Railway; Pontiac Pacific Junction Railway; Ottawa and Gatineau Valley Railway; Napanee and Tamworth Railway; Erie and Huron Railway; Ontario and Pacific Railway; Kingston and Pembroke Railway Company; Railway and Bridge between Jacques Cartier Union Railway Junction and St. Martin's Junction; St. Louis to Richibucto Railway; Hopewell to Alma; St. Andrews to Lachute Railway; Grand Piles to Lac des Iles Railway; Western Counties, Annapolis to Digby Railway; Baie des Chaleurs, Caraquet to Shippigan; Metapedia to Paspébiac; Miramichi Valley Railway; Derby Station to Indian Town (I. C. R. Branch.) (*Sessional Papers only.*)
- 21g. Copy of contract between Her Majesty the Queen, acting in respect of the Dominion of Canada, and therein represented by the Hon. Sir Charles Tupper, K.C.M.G., Minister of Railways and Canals,—and the Northern Pacific Junction Railway Company. (*Not printed.*)
- 22... EXPENSES OF COMMISSIONERS, ETC. :—Return to Order; Return showing the expenses in detail incurred by the several members of the Government, and any other person sent to England or elsewhere, on behalf of the Government, from 16th December, 1880, to the present. (*Not printed.*)
- 22a. Supplementary Return to preceding. (*Not printed.*)

No. 23...	EMPLOYÉS IN MILITARY DISTRICTS:—Return to Order; Return showing the name of each officer and employé in each Military District, with salary and date of appointment. ( <i>Not printed.</i> )
24...	COST OF CONVEYING PRISONERS:—Return to Order; Statement showing the cost per capita of conveying prisoners from county gaols to penitentiaries, in the years 1880-81 and 1881-82. ( <i>Not printed.</i> )
25...	DOMINION LANDS:—Return to Order; Return showing the total acres of public land sold during the year 1882, the number of parties to whom sold, the average price, and the total amount received from sales.
25a...	Return ( <i>in part</i> ) to Address; 1. Copies of all correspondence, etc., with the Land Commissioner at Winnipeg, or other land agent, respecting the withdrawal of lands in the Mile Belt from homestead and pre-emption, and respecting the opening of said lands for homestead and pre-emption. 2. All correspondence, etc., as to the claims of settlers and squatters on such lands. 3. All correspondence, etc., respecting the sale of such lands, etc. 4. All regulations respecting the claims made by settlers or squatters on such land. ( <i>Not printed.</i> )
25b...	Return to Order; Return giving copies of all regulations or orders issued concerning the sale or management of Agricultural Lands, Timber Lands, Pasture Lands, Mineral Lands and Town Sites, not covered by the Order of last Session. ( <i>Not printed.</i> )
25c...	Return to Order; Representation to the Government on the subject of the simplification of the system of transfer of lands of the North-West. ( <i>Not printed.</i> )
25d...	Return to Order; Copies of correspondence, if any, between the Mayor and Council of Winnipeg and the Government, in reference to a grant or lease of the land at Fort Osborne to the city for park purposes. ( <i>Not printed.</i> )
25e...	Return to Address; Copies of the Order in Council setting apart lands to be granted to the Qu'Appelle Valley Farming Company; also, all correspondence, etc., in reference to the fulfilment of the terms of said order, and the removal of settlers found on said lands, etc. ( <i>Not printed.</i> )
25f...	Return to Order; Return showing the total number of acres of public lands surveyed in Keewatin, Manitoba and the North-West Territories, previous to the year 1883, and the cost per acre of such survey. ( <i>Not printed.</i> )
25g...	Return to Order; Return showing the total number of acres of public lands entered as homesteads and pre-emptions during the year 1883, with the number of such entries, etc. ( <i>Not printed.</i> )
25h...	Return to Address (Senate); Return showing all Orders in Council, etc., since 1st January, 1882, with reference to the sale of, or the order for the sale of, Ordnance Lands in Sorel Seignior. ( <i>Not printed.</i> )
25i...	Return to Order; Return concerning the sales of Dominion Lands in Manitoba and the North-West Territories during 1882. ( <i>Not printed.</i> )
25j...	Return to Order; Return showing the total number of applications for land for colonization, under Plan No. 1 of the land regulations of December 23rd, 1881, where conditions have been complied with and applications agreed to, etc., up to January 1st, 1883. ( <i>Sessional Papers only</i> )
25k...	Return to Order; Return showing the total number of acres of public lands sold in the year 1883, the average price per acre, and the total amount received from such sales; also, the number of applications under Colonization Plans Nos. 1 and 2, under regulations of December 23rd, 1881, the number of acres granted under each application, etc. ( <i>Not printed.</i> )
25l...	Return to Order; Return showing the number of acres or square miles of timbered lands or timber limits sold by the Government since 1st March, 1883, in or convenient to the Bow River country, in the North-West, giving the names of the parties sold to, and the prices paid, etc. ( <i>Not printed.</i> )
25m...	Supplementary Return to No. 25b. ( <i>Not printed.</i> )
25n...	Return to Order; Return giving copies of all regulations issued concerning the management or sale of Agricultural Lands, Mineral Lands, Timber Lands, Pasture Lands, and Town Sites, since December 23rd 1881. ( <i>Not printed.</i> )

- No. 25o. DOMINION LANDS :—**Return to Order; Return of all Reports not hitherto published, relating to the character and probable resources of the country through which the Canadian Pacific Railway is being constructed, to the north of Lakes Huron and Superior, embracing all information in possession of the Government in respect to the whole of the region intervening, between the Great Lakes and the southern coast of Hudson Bay. (*Not printed.*)
- 25p. Return to Order; Copies of all applications for, etc., and statement of all sales or leases made of Coal Lands in the North-West, not covered by the Returns already ordered, and of the particulars of all conversions of leaseholds into freeholds of Coal Lands; and the payments made under any leases, sales or conversions. (*Not printed.*)
- 25q. Return to Address; Copies of all correspondence between the Provincial Agricultural and Industrial Society, also the Board of Agriculture of Manitoba, and the Government, on the subject of a grant of land in Winnipeg for Exhibition purposes. (*Not printed.*)
- 25r. Return to Order; Return showing the number of acres of Public Lands surveyed in Manitoba and the North-West Territory, in the year 1883, and the cost per acre of such survey. (*Not printed.*)
- 25s. Supplementary Return to No. 25a. (*Not printed.*)
- 25t. Return to Address; Copies of all correspondence, etc., with agents, as to the withdrawal from homestead and pre-emption of all lands south of the main line of the Canadian Pacific Railway; also, the existing regulations in respect to the disposal of said lands. (*Not printed.*)
- 25u. Return to Address; 1. Copies of all correspondence, etc., with agents as to the withdrawal from homestead and pre-emption of the lands south of the Canadian Pacific Railway. 2. All correspondence, etc., as to the claims of settlers or squatters on such lands. 3. All correspondence, etc., respecting the sales of such lands. 4. All sales effected privately up to 1st January, 1884; with the conditions and price. 5. All correspondence, etc., respecting the re-opening of said lands for homestead and pre-emption. (*Not printed.*)
- 25v. Return to Address; 1. Copies of all correspondence, etc., with the agents of the Government respecting the withdrawal from homestead and pre-emption of all lands in the Town Reserve, at Regina, Moose Jaw, and other places in the North-West Territories on the line of the Canadian Pacific Railway, and respecting the re-opening of the said lands for homestead and pre-emption, with the terms and conditions on which so re-opened. 2. All correspondence, etc., as to the claims of settlers and squatters on such lands. 3. All correspondence, etc., respecting the sale of such lands. 4. All regulations, etc., respecting the claims made by settlers or squatters on such lands. (*Not printed.*)
- 25w. Return to Order; Return showing the number of Pasture Land Leases granted in the year 1883, the name of each lessee, the estimated number of acres covered by each lease, the term of each lease, the sum received and to be received upon each lease, and the total number of acres leased, and the total receipts from leases during the year. (*Distribution only.*)
26. VICE-ADMIRALTY COURTS :—Return to Address; Return showing the amount of money paid as the emoluments of their offices, to the Judge, Registrar and Marshal of the Vice-Admiralty Courts at Quebec, Halifax and St. John, respectively; also, a Return showing the number of libels filed and cases tried in the said Courts respectively, from 1st July, 1867, to the present date. (*Distribution only.*)
- 26a. Return to Address; Copies of all dispatches not already brought down, from the Imperial Government, in relation to the Vice-Admiralty Courts in the Dominion, and the change of procedure and practice therein. (*Not printed.*)
27. LIGHTHOUSES :—Return to Order; Copies of all correspondence, etc., in connection with the erection of a lighthouse at Westhavers' Point, Hubbard's Cove, Lunenburg County, and all instructions to the Commander of the steamship "Newfield," or any other officer of the Government, in reference to said lighthouse, under which he acted on 10th June, 1882; also, copy of agreement for the purchase of land for said lighthouse between the Government and C. E. Kaulbach, Esq., M.P. (*Not printed.*)

- No. 27a. **LIGHTHOUSES**:—Return to Order; Return showing in detail the amounts expended, with vouchers, from 1st January, 1880, in repairs on the Pelée Island, Long Point and Rondeau lighthouses; also, copy of all correspondence between the Government and John Corbett, also William Grubb, or any other person relating to the Pelée Island lighthouse. (*Not printed.*)
- 28... **DOMINION MONEY ON DEPOSIT**:—Return to Order; Statement showing the amount of money on deposit to the credit of the Government of Canada on 1st January, 1884, together with the names of the banks wherein the said moneys are deposited, with the amount; also the amount at interest, with the rate allowed on the said deposits in each case. (*Distribution only.*)
- 29... **RECEIPTS AND EXPENDITURE**:—Return to Order; Return of, in detail, chargeable to the Consolidated Fund, from 1st July, 1882, to 20th January, 1883, and from 1st July, 1883, to 20th January, 1884. (*Distribution only.*)
- 29a. Return to Order: Return of, chargeable to the Consolidated Fund, to 10th February, in each of the fiscal years 1883 and 1884. (*Distribution only.*)
- 29b. Return (*in part*) to Order: Statement of, chargeable to the Consolidated Fund, to 20th March, 1883 and 1884, in each year respectively; also, for Return of Exports and Imports to 1st March, 1883 and 1884, respectively. (*Not printed.*)
- 30... **INTOXICATING LIQUORS**:—Return to Order; Return of all certificates for liquor granted under the Act of 1878 by the physicians of the County of Halton, giving the name of each physician and the number of certificates granted by each, from 1st May to 31st December, 1882. (*Not printed.*)
- 30a. Return to Order; Return showing quantity of intoxicating liquors imported, manufactured and entered for consumption in Canada, during the year ended 31st December, 1883, by Provinces, with the Customs and Excise duties accruing thereon, and the total cost thereof. (*Not printed.*)
- 30b. Return to Address; Copies of all correspondence, etc., on the subject of the importation of liquor into the North-West Territories. (*Not printed.*)
- 30c. Return of liquors sold to parties in the County of Halton, under the Canada Temperance Act, 41 Vic., chap. 16.
- 30d. Return to Order; Return of all certificates given by medical men under the Temperance Act, 1878, in Prince County, P.E.I., since that Act came into force in that County, showing by whom, to whom, and when granted. (*Distribution only.*)
- 30e. Return to Address; Copies of judgment of the Supreme Court of Canada, not already brought down, on the question of the legislative power with reference to the regulation of the sale of intoxicating liquors, and of the judgment of the Judicial Committee of the Privy Council in the case of Hodge against the Queen on the same subject, and of the shorthand writer's notes of the proceedings before the Committee, and of any correspondence in connection with the case; and also, for copies of the shorthand writer's notes of the proceedings before the Committee in the case of Russell and the Queen. (*Sessional Papers only.*)
- 30f. Return to Address; Copies of all correspondence between the Government and the Provinces respecting the Liquor License Act of 1883. (*Sessional Papers only.*)
- 31... **CANADIAN PACIFIC RAILWAY**:—Correspondence relating to the guarantee by the Government of interest on the stock of the Company.
- 31a. Resolution of the House; Report giving information affecting the Railway, up to the latest date:—1. The selection of the route. 2. The selection or reservation of land. 3. The payment of moneys, subsidy, advance, etc. 4. The laying out of branches. 5. The rates of tolls for passengers and freight. 6. Sundry subjects, construction of bridges, etc. 7. (1.) Transfer and operation of the Thunder Bay section, and (2.) Valuation of the rolling stock to be taken over by the Company.
- 31b. Copies of contracts for the Railway, entered into since last Session of Parliament. (*Sessional Papers only.*)
- 31c. Papers connected with an application from the Company, for an advance, on security, of a sum sufficient to enable them to continue the work of construction. (*Sessional Papers only.*)

**No. 31d. CANADIAN PACIFIC RAILWAY;—Supplementary Return to No. 31a. (Not printed.)**

- 31e.. Copies of correspondence with the Finance Department relating to the affairs of the Company, since the date of the last Return to the House of Commons last Session. (*Sessional Papers only.*)
- 31f. Return concerning the Company:—Pages X to XV, pages 7 to 13 (Appendix No. 3), and pages 152 to 154 (Appendix No. 9) of Departmental Report, also memorandums by Mr. Schreiber, 2nd February, 1884, on location and unfinished work. Profiles from 1 to 16, showing branch lines, main line, and approved sections thereof. Statistical return required by Consolidated Railway Act, and report of payments, etc. (*Sessional Papers only.*)
- 31g. Return to Address; Copies of all contracts made by the Company for the construction of any part of its railway. (*Sessional Papers only*)
- 31g-1. Return to Address; Copy of the instrument of incorporation or association of the North American Contracting Company, and the names of shareholders or associates thereof. (*Sessional Papers only*)
- 31h. Return to Address; Copies of any official or public memoranda, etc., of the Company relative to its position, etc., not already brought down. (*Sessional Papers only.*)
- 31h-1. Return to Address; Statement showing the amount of the subscribed stock of the Company, prior to the authorization for an increase of its capital stock from \$25,000,000 to \$100,000,000, etc. (*Sessional Papers only.*)
- 31i. Return to Address; Copies of all reports, etc., not laid on the Table, respecting the guarantee for the Company; and respecting any proposed modification of that arrangement; also, respecting the postal subsidies. (*Sessional Papers only.*)
- 31j.. Return to Order; Statement containing estimates of further sums required to be paid to the contractors for Section B. or to the Company, on account of contract for construction, or of any subsequent agreement. (*Not printed.*)
- 31k. Return to Address; Statement of the cost of the first forty miles west of Callander, built by the company, and the payments in detail made to the Construction Company in respect of the line west to Sudbury Junction or beyond; the cost of any work done by the Company on this section since the cancellation of the contract with the Construction Company up to 31st December, 1883, and the names of the persons with whom contracts for such work were made, with copies of their contracts; like particulars in respect of the line from Port Arthur eastward; and statement of the cost of the Algoma Mills Branch. (*Sessional Papers only.*)
- 31k-1. Return to Address; Statement of the mileage built by, and the payments to, the Construction Company, in respect of the railway line from the point 45 miles east of the Saskatchewan going westward; of the cost to the Company of the line from the above point to the summit of the Rockies; of the estimated cost to complete that part of the railway unfinished between Callander and Port Arthur, and separately of the equipment for this part; of the estimated mileage cost of this part, and that of the very heavy section of 100 miles; like statement to complete that part left unfinished between the Rocky Mountains and Kamloops. (*Sessional Papers only.*)
- 31k-2. Return to Address; Statement of the mileage cost of the line for the 615 miles west of Winnipeg to a point 45 miles east of the Saskatchewan, and the names of the contractors, with copies of their contracts, including *Shepherd and Langdon's*. (*Sessional Papers only.*)
- 31k-3. Return to Address; Statements concerning the North American Contracting Company. (*Sessional Papers only.*)
- 31k-4. Return to Address; Statement of the consideration paid by the Company for (1) the St. Lin Branch, or Laurentian Railway; (2) the Canadian North-West Land Company's stock; (3) the securities or property of the South Eastern Railway; (4) the charter of the Atlantic and North-Western Railway Company. (*Sessional Papers only.*)

No. 31k-5	CANADIAN PACIFIC RAILWAY :—Return to Address; Statement of the net price received by the Company for each lot of ten millions of stock comprising the thirty millions issued to a syndicate, etc.; also, the date and rate at which the twenty millions remaining of the original stock of twenty-five millions was taken, and dates at which the five million dollars was paid thereon. ( <i>Sessional Papers only.</i> )
31l.	Return to Address; Copies of correspondence between the Government and the Company, and any other railway company, with regard to the opening of the Union Jacques Cartier Railway. ( <i>Sessional Papers only.</i> )
31m.	Supplementary Return to 31k—5. ( <i>Sessional Papers only.</i> )
31n.	Supplementary Return to 31k—4. ( <i>Sessional Papers only.</i> )
31o.	Supplementary Return to 31k—3. ( <i>Sessional Papers only.</i> )
31p.	Return to Order; Map or maps, showing the location of the Railway and branches, so far as approved, and so far as proposed. The lands set apart and those applied for but not yet set apart. ( <i>Not printed.</i> )
31q.	Return to Address; Copies of any agreement between the Government and the contractors for Section B, in regard to the transfer of the contract, and of any Orders in Council giving effect to said agreement. ( <i>Sessional Papers only.</i> )
31r.	Return to Address; Copy of a Memorial to His Excellency in Council, signed by Frank Moberly and W. A. McCallum on behalf of the inhabitants of Neebing, praying for relief with reference to their bonuses to the Prince Arthur's Landing and Kaministiquia Railway Company. ( <i>Not printed.</i> )
31s.	Return to Address; Copies of all correspondence, etc., between the Government and the Company, on the subject of immigration to Manitoba and the North-West, together with a Statement showing the amount expended by the Company in promoting such immigration, etc. ( <i>Not printed.</i> )
31t.	Return to Address; Copies of all correspondence, etc., relating to the allowances proposed to be paid to the Canadian manufacturers of certain goods required by the Railway; all applications for such allowance, a Statement of the calculations on which the allowances have been based, and the estimate in detail of the probable sums payable out of the Treasury in respect of each class of goods, assuming them to be made in Canada, to the extent of the Company's requirements, and of the <i>ad valorem</i> percentages of all allowances on each such class. ( <i>Sessional Papers only.</i> )
31u.	Return to Address; Statement showing the names of all shareholders of the Company and the amounts of stock held by each on each of the following days, namely: 14th, 21st, 28th October, and 4th November, 1883. ( <i>Sessional Papers only.</i> )
31v.	Return to Address; 1. For a statement of the expenditure in connection with the St. Lawrence and Ottawa Railway. 2. For a statement in full detail of the amount of \$473,000 or thereabouts stated to be for sundry advances, carriers, back charges and other matters. 3. For a statement, in detail, of the payments on account of interest on stock. 4. For copies of all reports, etc., on which the estimates of the Company and Mr. Schreiber, as to the cost of completing the railway are founded. ( <i>Sessional Papers only.</i> )
31w.	Supplementary Return to No. 31k-2. ( <i>Sessional Papers only.</i> )
31x.	Supplementary Return to Statement No. 31k-1. ( <i>Sessional Papers only.</i> )
31y.	Supplementary Return to No. 31k. ( <i>Sessional Papers only.</i> )
31z.	Return to Address; Copies of all papers, etc., in connection with all payments or advances to the Company on any account whatever, not included in the statements already brought down. ( <i>Sessional Papers only.</i> )
31aa.	Papers in connection with arbitrations arising out of claims in respect to the construction of certain sections of the Railway. ( <i>Sessional Papers only.</i> )
31bb.	Copies of letters from Messrs. Manning, McDonald & Co., of the 7th January, —a d 24th February, 1881, respectively. ( <i>Sessional Papers only.</i> )

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 CONTENTS OF VOLUME No. 10.
 

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- No. 32... BANKS :—Lists of Shareholders of the Canadian Banks for the year 1883.
- 33... CIVIL SERVICE :—Return (Senate) of the names and salaries, etc., of the employés of the Civil Service, also the officers of the paid Militia Staff, the Senate and House of Commons. (*Sessional Papers only*)
- 33a. Return (Senate) of the names and salaries of all persons appointed to or promoted in the Civil Service during the year ending 31st December, 1883, specifying the office to which each has been appointed or promoted. (*Sessional Papers only*)
- 33b. Report of the Examiners for the year 1883.
- 34... BONDS AND SECURITIES :—Detailed statement of, registered in the Department of the Secretary of State of Canada. (*Not printed.*)
- 35... ACCIDENTS ON CANADIAN RAILWAYS :—Return to Order; Return of accidents and casualties on the railways in Canada for the three years ended 31st December, 1882, with a separate statement for each railway, etc. (*Not printed.*)
- 36... AGRICULTURE :—Return to Orders; Statement of the values of agricultural implements, carriages, etc., on which have been based the proposed new specific duties, etc.; also, Statement of the values assigned in making the calculations of the duties to be proposed for the various articles on which specific or combined specific and *ad valorem* duties are proposed to be charged under the Tariff Resolutions. (*Not printed.*)
- 36a. Statement (*in part*) of all expenses incurred by the Committee appointed during the Session of 1882, to enquire into and report upon the operation of the Tariff upon the Agricultural Interests of the Dominion. (*Not printed.*)
- 36b. Return to Order; Copies of all Petitions to the Minister of Agriculture, requesting that prizes be granted for the best essays upon the Agricultural Industries and Mechanical Arts, and that the essays upon these subjects be distributed among the farmers and artisans. (*Not printed.*)
- 36c. Report on Agricultural Statistics of Manitoba and the North-West Territories, for the year 1883. (*Not printed.*)
- 37... DUFFERIN BRIDGE, OTTAWA :—Return to Address; Copies of all correspondence, etc., in reference to the remission of duty on the iron imported for the construction of Dufferin Bridge in 1873. (*Not printed.*)
- 38... DOMINION STATUTES :—Official Return of the distribution of, being 46 Victoria, 1883. (*Not printed.*)
- 38a. Report of the Commissioners appointed to consolidate and revise the Statutes of Canada. (*Not printed.*)
- 39... CANADIAN LOANS :—Return to Order; Copies of all Departmental Orders, etc., as to the proposed Canadian loan of four millions. (*Not printed.*)
- 39a. Return to Address; Copies of all papers, etc., relative to the mission of the Minister of Finance to England, in 1883, for the purpose of making arrangements for the issue of a new loan. (*Not printed.*)
- 40... EXCHANGE BANK OF CANADA :—Return to Address; Statement in detail of the account of the Government with the Bank, and all correspondence, etc., relative to any deposits or withdrawals. (*Not printed.*)
- 41... CENSUS AND STATISTICS :—Report, required by sec. 25 of the Census and Statistics Act of 1879, of operations and expenses during the calendar year 1883. (*Not printed.*)
- 42... SESSIONAL RETURNS, EXPENDITURE FOR :—Return to Order; Statement of the sum expended in each year, since the change of the system, by each Department, out of the lump vote for Sessional Returns. (*Not printed.*)
- 43... LA COURIER DE ST. HYACINTHE :—Return to Order; Detailed Statement of the expenditure of the sums of \$5,000 and \$2,688.74, paid to *Le Courier de St. Hyacinthe*. Also, similar particulars with reference to the expenditure of \$3,239.20, for publication of the proceedings of the Royal Society. (*Not printed.*)

- No. 44... **DAMOUR D., DISMISSAL OF:**—Return to Address; Copies of all Orders in Council, etc., in relation to the dismissal of David Damour, heretofore Captain of the Lightship at Isle Rouge. (*Not printed.*)
- 45... **DOMINION STEAMERS:**—Return to Order; Copy of the report of Captain Scott, R.N., and assessors, with the evidence upon the loss of the steamer "Princess Louise." (*Distribution only.*)
- 45a. Return to Order; Copy of contract, etc., entered into by the Government with Jotham O'Brien, for the building of the steamer "Princess Louise"; also copies of all Orders, etc., relating to the towage of the said steamer from Maccan to Halifax; and also any contracts, etc., in reference to the procuring and building of engines for the said steamer. (*Not printed.*)
- 45b. Return to Order; Copies of all reports made by the steamboat inspectors of hulls and machinery, upon the steamers "St. Lawrence," "Prince of Wales," and "Northern Light," since their appointment; and all correspondence, etc., relating to the stoppage of the two former steamers from carrying passengers and freight during the past season or to the employment of the "Northern Light" and "Napoleon III." in their place. Also copies of all certificates granted to either of said steamers "Northern Light" and "Napoleon III." Also, copies of all correspondence relating to the state of repair of the "Northern Light," or to her being placed upon the slip at Pictou during the past summer. (*Distribution only.*)
- 45c. Return to Order; Return of the names of the several persons who sent in tenders for the construction of a steamer to replace the "Princess Louise," and of the person to whom the contract was awarded; also, copy of specifications furnished parties tendering. (*Not printed.*)
- 45d. Return to Order; Return of a Statement in detail, of the amount paid Mr. Jotham O'Brien on his contract for building the "Princess Louise" together with any certificates upon which the same or any portion has been paid. (*Not printed.*)
- 45e.. Return (*in part*) to Address; Copies of all correspondence, etc., respecting a grant for the winter service performed on the St. Lawrence, between Murray Bay and Rivière Ouelle, by the steamer "Fulger;" also, a Statement of the sums paid, or to be paid, by the Dominion for that purpose. (*Not printed.*)
- 46... **EXPORTS AND IMPORTS:**—Return to Order; Return of the Exports and Imports from 1st July, 1882 to 1st January, 1883, and from 1st July, 1883, to 1st January, 1884, distinguishing the products of Canada and those of other countries. (*Distribution only.*)
- 47... **JACQUES, JAMES H., AND KEARNEY, CHARLES:**—Return to Order; Copies of all correspondence in relation to the appointment of James H. Jacques and Charles Kearney, of Carleton County, N.B., to positions in the Civil Service of Canada. (*Not printed.*)
- 47a. Supplementary Return to preceding. (*Not printed.*)
- 48... **DRAWBACKS:**—Return to Order; Return of all memorials, etc., asking for a drawback on sugar refined in Canada when exported to any foreign country; also, copy of any regulations made for such drawback. (*Not printed.*)
- 48a. Return to Order; Return of all claims presented for drawback on materials used for shipbuilding, for the year ended 30th June, 1883; also, for the six months ended December 31st, 1883, giving the name of the applicant, etc. (*Distribution only.*)
- 48b. Return to Order; Return of all claims presented for drawbacks on goods manufactured for export (not included in the last Return made to this House), showing the names of all applicants, etc. (*Distribution only.*)
- 48c. Supplementary Return to No. 48. (*Not printed.*)
- 48d. Return to Order; Return showing the amount paid, and to whom paid etc., as drawback on cotton duck used for sails for ships and fishing boats in 1883. (*Distribution only.*)
- 49... **DUSTAN, MR., CLAIM OF:**—Return to Address; Copies of all correspondence, etc., with reference to the claim of Mr. Dustan, of Halifax, for a remission of duty on machinery for a sugar refinery. (*Not printed.*)

- No. 49a.. DUSTAN, MR., CLAIM OF:—Supplementary Return to the preceding. (*Not printed.*)
- 50... TIMBER LICENSES:—Return to Address; Return of all Orders in Council, etc., relating to the granting of licenses to cut timber on Indian lands in Ontario, from January, 1875, to date. (*Distribution only.*)
- 50a.. Return to Order; Return showing the total number of timber licenses or permits applied for, and granted, or refused, up to 1st February, 1883, etc. (*Distribution only.*)
- 50b.. Return to Address; Copies of all correspondence, etc., with reference to the granting, cancellation and suspension of licenses to cut timber on the Indian lands near Fort William, on the Fort William Reserve. (*Not printed.*)
- 50c.. Supplementary Return to No. 50a. (*Not printed.*)
- 51... HOME AND INDIAN INSTRUCTION FARMS:—Return to Order; Return showing the number closed since 1st January, 1882; the location, etc., the reason why closed; also the report, or any supplementary report, of T. P. Wadsworth, Inspector of Indian Agencies, for 1883. (*Not printed.*)
- 52... LA CLOCHE ISLAND, ETC.:—Return to Address; Copies of all correspondence between the Governments of Ontario and Canada as to the sale of La Cloche Island, near Georgian Bay, or the Duck Islands, and as to the claims of the respective Governments with reference to islands in that neighbourhood.

### CONTENTS OF VOLUME No. 11.

- 53... INTERCOLONIAL RAILWAY:—Return to Address; Copies of all correspondence between the Local Government and Department of Railways and Canals, respecting railway matters in Nova Scotia since 6th March, 1883.
- 53a.. Supplementary Return to the preceding.
- 53b.. Return to Order; Statement of the revenue and expenses of, for the six months ending December 31st, 1883. (*Not printed.*)
- 53c.. Return to Order; Return of casualties, with cause and loss, etc., from March 1st, 1883, to January 1st, 1884. (*Not printed.*)
- 53d.. Return to Order; Return showing the length in miles of the Railway between Rivière du Loup and Moncton; also, between the boundary of New Brunswick and Truro, together with the original cost of constructing the same, not including the rolling stock. (*Not printed.*)
- 53e.. Return to Order; Statement showing the names, etc., of the several principal officials in the service of the Government on the Railway. (*Not printed.*)
- 53f.. Address to Order; Return showing the number of days and the dates upon which the Intercolonial Board of Commissioners held sittings, from 1st January, 1883, to 31st January, 1884, the number of times each member was absent from meetings, the monthly allowances paid to each member, and the total amount paid to each during the time above named; also, dates upon which meetings were held outside of Ottawa, and where. (*Not printed.*)
- 53g.. Return to Order; Statement showing the amounts derived from sales of buildings on the railway between Hadlow and Rivière du Loup, inclusive; by whom sold, the name of the purchaser, and the price paid for each building. (*Not printed.*)
- 53h.. Return to Address; Copies of all correspondence, etc., with the Intercolonial Board of Commissioners, and a statement of the matters referred to them, subsequent to the period covered by the Return to the Address of last Session. (*Not printed.*)
- 53i.. Return to Order; Copies of arrangements made between the Dominion Government and the Quebec Central Railway Company whereby the said Company enjoys the right of way over that part of the Railway, known as the St. Charles Branch. (*Not printed.*)
- 53j.. Return to Address; Copies of all correspondence, etc., not already brought down, between the Governments of the Dominion and New Brunswick, relating to a claim made by the latter for the balance they claim as due them on that portion of the Railway known as the Eastern Extension, since May, 1876. (*Not printed.*)

- No. 53*k*. INTERCOLONIAL RAILWAY:—Return to Order; Return showing the quantity of rolling stock purchased for the Railway during the year ending 31st December, 1883; also, what has been built during the year in the Government workshops. (*Not printed.*)
- 53*l*.. Return to Order; Comparative Statement showing the names, etc., of the employés on the Intercolonial and Prince Edward Island Railways, in the Superintendent's Office, Road Department, Mechanical Department, Stores Department, Accountant's Office; also, the names, etc., of conductors, drivers and station agents on the said respective roads. (*Not printed.*)
- 53*m* Copies of Orders in Council appointing three Commissioners to investigate and report on claims arising out of the construction of the railway, etc. (*Sessional Papers only.*)
- 53*n*. Special Reports of these Commissioners on the claim, viz., of Neilson & McGaw, Duncan Macdonald, Frederick Turgeon, Andrew Johnson & Co., Alexander McDonell & Co., Ebenezer Hicks, Donald Fraser & Co., McEean & Robinson, Martin Murphy, Starr & de Wolf, E. A. Jones & Co., J. M. Blaikie, John Russell, Alphonse Matte, R. H. McGreevy, and Smith & Pitblado. (*Sessional Papers only.*)
- 53*o*. Return to Order; Statement showing the number of passes, by whom and to whom given, on the Railway, from 1st January, 1874, to 1st January, 1884, in each year. (*Not printed.*)
- 53*p*. Return to Address (Senate); Return showing the number of free passes on the Intercolonial and Prince Edward Island Railways, issued to persons not actually employed on these railways, between 1st January, 1874, and 31st December, 1883, with the names of the persons to whom, the dates when, and the times or occasions for which the same were issued. (*Not printed.*)
- 54... INSPECTION OF NEWFOUNDLAND HERRING:—Return to Address; Copies of all correspondence between the Governments of Canada and Newfoundland, etc., on the subject of the inspection in Canada of Newfoundland pickled herring imported; statement showing the quantity of Newfoundland herring imported in the different ports of Canada in 1883, the number of barrels and half-barrels of the said fish that have been submitted to our official inspection, and the result.
- 55... BRITISH CANADIAN LOAN AND INVESTMENT CO.:—A list of shareholders and also a statement of its affairs on 31st December, 1883. (*Not printed.*)
56. ACCOUNTS OF ONTARIO AND QUEBEC WITH CANADA:—Return to Address; Copies of the statements rendered to Ontario and Quebec as to their accounts with Canada; and all Orders in Council, etc., in connection therewith.
- 57... CHABOT, CHARLES, PETITION OF:—Return to Address; Copy of the complaint or petition of Charles Chabot, of St. Charles de Bellechasse, presented to the Dominion Arbitrators; also, of the record of proceedings before the said Arbitrators, etc. (*Not printed.*)
- 58... CHABOT, LOUIS, PETITION OF:—Return to Address; Copy of the complaint or petition of Louis Chabot, of St. Charles de Bellechasse, presented to the Dominion Arbitrators; also, of the record of proceedings before the said Arbitrators, etc. (*Not printed.*)
- 59... GOSSELIN, E., PETITION OF:—Return to Address; Copy of the complaint or petition of Eugène Gosselin, of St. Charles de Bellechasse, presented to the Dominion Arbitrators; also, of the record of proceedings before the said Arbitrators, etc. (*Not printed.*)
- 60... FRAUDS ON BONDED WHEAT OR FLOUR EXPORTED:—Return to Order; Copies of all correspondence, not already brought down, with reference to frauds upon the Customs in the export of Canadian wheat or flour in satisfaction of bonds given on the importation of United States wheat or flour. (*Not printed.*)
- 61... DUTY ON GRAIN, COAL, ETC.:—Return to Order; Copies of all memorials, etc., relating to the abolition of duty on grain, flour and coal during 1882, and subsequently. (*Not printed.*)

- No. 61a. DUTY ON GRAIN, COAL, ETC.;—Return to Order; Copies of all documents in relation to the abolition of the duties on lumber imported into Manitoba; together with a Statement of the quantity imported into Manitoba, and the duty paid thereon, for the years 1880, 1881 and 1882. (*Not printed.*)
- 61b. Return to Order; Return showing quantity and value of wheat and wheat flour (separately) and duty collected thereon, imported from the United States and entered for consumption, for six months ended 31st December, 1883. (*Not printed.*)
- 62... MCGILLIVRAY, ARCHIBALD:—Return to Order; Copies of all correspondence, etc., respecting the filling of the vacancy caused at Morristown, N.S., by the death of Archibald McGillivray, late Preventive Officer. (*Not printed.*)
- 63... WHEAT, FLOUR, CORN AND CORNMEAL:—Return to Order; Return showing the quantity of wheat and flour, also corn and cornmeal, imported into, and exported from the Dominion, during (1) the five months ended 30th November, and (2) the month of December, 1883. (*Not printed.*)
- 64... COAL:—Return to Address; Copies of any correspondence concerning, or regulations or orders of the United States Government under which Nova Scotia coal imported into the United States ports, is permitted to be used for ocean steamship purposes, without the payment of duty. (*Not printed.*)
- 64a. Return to Order; Statement of all coal entered ex-warehouse, free, or for exportation, during the years ending 30th June, 1882 and 1883. (*Not printed.*)
- 64b. Return to Order (Senate); Return showing quantity of coal carried by the Intercolonial Railway, from points along the line, during the year 1883, showing where delivered and the rate for carriage; and also the coal carried from Nova Scotia by steamboat and sailing vessel to the different ports of the Dominion. (*Not printed.*)
- 65... PORPOISE FISHERY, RIVIÈRE OUELLE:—Return to Order; Copies of the correspondence, etc., respecting the porpoise fishery at Rivière Ouelle, Kamouraska. (*Not printed.*)
- 66... FISHERIES:—Return to Order; Statement showing name, etc., of each vessel that received bounty during the years 1882 and 1883; also name, etc., of each vessel applying for same, and refused, and the grounds of refusal. (*Distribution only.*)
- 66a. Return to Order; Return of all regulations now in force under the provisions of "The Fisheries Act," prohibiting fishing in waters situate in Ontario. (*Not printed.*)
- 66b. Return to Address; Statement showing the number of salmon fishing licenses issued during the years 1881, '82, '83 and '84, from Murray Bay to River au Canard, on the north shore of the River St. Lawrence, with the licensees' names, license fees and other correspondence, etc., relating thereto. (*Not printed.*)
- 67... RECIPROCAL TRADE WITH BRAZIL, WEST INDIES AND MEXICO:—Return to Address; Copies of all correspondence, etc., relating to Reciprocal Trade agreements between the Governments of Brazil, the West India Islands and Mexico, and Canada. Also a statement of the Customs duties imposed by these countries on their imports or exports. A statement of the quantities of the different articles exported to these countries and imported from these countries during the last ten years. A statement of commercial treaties, if such exist, between any of these countries and Great Britain.
- 67a. WASHINGTON TREATY, FISHERY CLAUSES OF:—Return to Address; Copies of all correspondence, etc., having reference to the notice given to the United States Government terminating the Fishery clauses of the Washington Treaty, or relating to any steps taken by the Government, on the subject of the use by American fishermen of the Sea Fisheries of the Dominion in view of the approaching termination of those Fishery clauses.
- 68... FREIGHT CHARGES, DUTY ON:—Return to Address; Copies of all Orders in Council, etc., with reference to the question of duty on freight charges. (*Not printed.*)

- No. 69... CUSTOMS LAWS AND REGULATIONS:—Return to Address; Copies of all correspondence, etc., between the Governments of the Dominion and the United States, and the United States National Distillers' Association, in relation to the modification of the existing Customs laws and regulations of this Dominion, and all Orders in Council, etc., in relation thereto. (*Not printed.*)
- 69a. Return to Address; Copies of all correspondence, etc., between the Governments of Canada and the United States, or the British Minister at Washington, having reference to excessive Customs duties on hay grown in and exported from Canada to the United States, and the refunding of the same. (*Distribution only.*)
- 70... QUEBEC PROVINCIAL SUBSIDY:—Return to Address; Copies of correspondence between the Dominion and Quebec, in relation to the claims of that Province against the Dominion.
- 71... FINES AND SEIZURES AT PORTS OF ENTRY:—Return to Order; Statement showing the number of seizures made at each port of entry in the Dominion during the fiscal year 1882-83; also, during the six months ending 31st December, 1883; the amount of fines exacted, and how disposed of, etc. (*Distribution only.*)
- 71a. Return to Order; Copies of correspondence, etc., respecting the seizure of coal oil barrels at Sandwich, Windsor and Walkerville. (*Not printed.*)
- 71b. Return to Order; Copies of all correspondence relating to the seizure of tobacco from the brig "Adeline;" and the inquiry held the 17th to the 21st May, 1881, at the request of Messieurs Lemessurier & Fils (*Not printed.*)
- 72... ISLANDS LEASED IN LAKE ONTARIO AND THE ST. LAWRENCE:—Return to Order; Return showing name and location of such islands as are leased in Lake Ontario and the St. Lawrence River. (*Not printed.*)
- 73... GRINDING IN BOND:—Return to Address; Copies of all Orders in Council, etc., not already brought down, on the subject of grinding in bond, or for the import of wheat and flour of United States growth or manufacture; also, for all correspondence on the subject of the transport of Canadian wheat into or through the States, and of all regulations of the United States Customs affecting such transport. (*Not printed.*)
- 74... INDIAN HARBOUR, N.S., BREAKWATER:—Return to Order; Copies of all papers, etc., relating to the building of a breakwater at Indian Harbour, Guysboro', N.S. (*Not printed.*)
75. BOUNTY ON MANUFACTURED IRON:—Return to Address; Copies of all correspondence, etc., on the subject of the bounty on manufactures of iron. (*Not printed.*)
76. HIGH COMMISSIONER:—Return to Address; Copies of all Orders in Council, correspondence, etc., touching the appointment of the present High Commissioner of Canada in London; the discharge of the duties of the Minister of Railways during his absence in England as High Commissioner; and the discharge of the duties of the High Commissioner during his absence in Canada, as Minister of Railways. (*Distribution only.*)
- 76a. Return to Order; Copies of all correspondence relating to any payments, claims or allowances on any account whatever in respect of the office of High Commissioner, not already brought down in separate Statements, in detail, in respect of the office during its tenure by Sir A. T. Galt, and by the present incumbent respectively, and an Estimate, in detail, of all sums payable up to this date, and yet unpaid; also, all correspondence, etc., as to the letting of a residence for the High Commissioner. (*Distribution only.*)
- 76b. Supplementary Return to No. 76. (*Not printed.*)
- 76c. Return to Order; Copies of all reports of the High Commissioner on the subject of immigration to Canada; not already brought down. (*Distribution only.*)
- 76d. Supplementary Return to No. 76. (*Not printed.*)

- No. 76. HIGH COMMISSIONER:—Return to Order; Copy of the letter of the Minister of Agriculture of 5th July, and all cablegrams addressed to the High Commissioner, calling his attention to the demand existing in Canada for the labouring classes, and informing him that notwithstanding the large immigration which has taken place, the requirements are still unsatisfied. Also, copies of special circulars issued by the steamship companies, quoting the Minister's cable messages by request of the High Commissioner. Also, copies of the cuttings from the London newspapers on the subject, forwarded by the High Commissioner. Also, copies of all cablegrams from Canada, and cuttings from Canadian newspapers, transmitted to England; and all correspondence obtainable on the subject of the labour demand in this country. (*Not printed.*)
77. OATHS TAKEN BY GOVERNORS:—Return to Address; Copies of the Oath or Oaths required to be taken by Governors General of Canada, also by Lieutenant-Governors of Quebec, before entering upon the discharge of their duties as such. (*Sessional Papers only.*)
- 77a. Return to Address; Copies of the Commission appointing His Excellency the Governor General of Canada; the Oath or Oaths required to be taken, and the instructions accompanying the Commission, &c. (*Sessional Papers only.*)
- 77b. Return to Address; Copies of the Commission appointing the several Lieutenant-Governors of the Province of Quebec, to wit: Sir Narcisse Fortunat Belleau, René Edouard Caron, Luc Letellier de St. Just, and Théodore Robitaille; the Oath or Oaths required to be taken; and the instructions accompanying the respective Commissions, etc. (*Sessional Papers only.*)
78. DESERTERS FROM U. S. ARMY:—Return to Address; Copies of all papers, etc., relating to the arrest, in Canadian Territory, by a detachment of United States soldiers, of Henry Watson, said to be formerly a resident of Nova Scotia, and Franklin Switzer, said to be formerly a resident of Kingston, Ontario, and a person surnamed Ellsworth, who were alleged to have deserted from the United States Army. (*Not printed.*)
79. INDIANS:—Return to Address; Copies of all correspondence, etc., respecting the Indian Agent's Office in Toronto, now removed to Ottawa, with a statement showing the names, etc., of all parties since appointed to discharge the duties formerly performed by the Toronto Agency; the amount of money paid to the Indians by each; the number of families in each Agency, etc. (*Not printed.*)
- 79a. Return to Order; Copies of all correspondence between the Superintendent of Indian Affairs in British Columbia, or any other person, and the Dominion Government, respecting the recent troubles with the Indians at Metlakatla, and Fort Simpson. (*Not printed.*)
80. MANITOBA ELECTORAL DIVISIONS:—Return to Order; Return showing the metes, bounds, etc., of each of the Electoral Divisions in Manitoba as represented in the House of Commons of Canada; also, the successful candidates, and when there was a contest, the number of votes cast for each. (*Not printed.*)
81. ESQUIMALT AND NANAIMO RAILWAY:—Return to Address; Copies of all correspondence not yet laid on the Table between the Governments of Canada and British Columbia, on the subject of the construction of the Esquimalt and Nanaimo Railway. (*Distribution only.*)
82. SUPPLY FARM, No. 20, ON FISH CREEK:—Return to Address; Return showing all Orders in Council, etc., respecting the sale of Supply Farm No. 20, on Fish Creek, near Calgary. Also, a Return showing: 1. The number of acres under cultivation at the time of sale. 2. The buildings thereon and the cost thereof. 3. All applications for the purchase of said farm. 4. A copy of the agreement entered into between the Government and the purchaser. 5. The price agreed to be paid and how paid or payable. 6. And copies of all correspondence between the Government and any person, respecting said farm. (*Not printed.*)
83. DORION, E., AND LECLERC, M., CLAIMS OF:—Return to Address; Copies of the claims of Eustache Dorion, Pilot, and Moise Leclerc, Bailiff, of Lauzon, presented to the Dominion Arbitrators in December, 1883; also, all the record of proceedings in the case. (*Not printed.*)

- No. 84... HUDSON BAY NAVIGATION:—Return to Address; Copies of all correspondence between Canada and the Imperial authorities or with Manitoba, or other parties, on the subject of the navigation of the Hudson Bay, not already brought down. (*Not printed.*)
- 85... McLENNAN, R., CLAIM OF:—Return to Order; Copies of all correspondence, etc., with reference to the claim of R. McLennan to Section 31, Township 21, Range 27 West, North-West Territory. (*Not printed.*)
- 86... PROPOSED FACTORY BILL:—Return to Order; Copies of all correspondence with the Manufacturers' Association, or the Trades and Labour Council, etc., on the subject of the provisions of the proposed Factory Bill. (*Distribution only.*)
- 87... BAPTISMS, MARRIAGES AND BURIALS:—General statements and returns of, for certain districts of the Province of Quebec, for the year 1883. (*Not printed.*)
- 88... DRILL SHEDS:—Return to Order; Copy of advertisement asking for tenders for the removal and rebuilding of the drill shed in St. Thomas, Ontario; also for tenders received, marking the one accepted, with statement of total cost of work done. (*Not printed.*)
- 88a... Return to Address; Copies of the contract awarded for the rebuilding of the drill shed at Montreal, and all reports on the state of the old drill shed and the work to be done; also, copies of all Orders in Council, etc., modifying the terms of the contract, etc., between the Government and the contractor. (*Not printed.*)
- 89... SCHOOL OF NAVIGATION AT QUEBEC:—Return to Address; Copies of all correspondence in relation to the School of Navigation at Quebec, and asking for a subsidy from the Dominion for said school. (*Not printed.*)
- 90... ORDINANCES RELATING TO N.W.T.:—Copy of a Despatch, dated the 1st November, 1883, from the Lieutenant-Governor of the North-West Territories, together with copies of the ordinances passed at a legislative session of the Council of the North-West Territories, and transmitted in accordance with Section II. of "The North-West Territories Act, 1880." (*Not printed.*)
- 91... NORTH CAPE AND EAST POINT PROPOSED SIGNAL STATIONS:—Return to Order; Copies of all correspondence, etc., between the Government and any other parties, relating to the erection of signal stations at the lighthouses at North Cape and East Point, in Prince Edward Island, and the construction of two short lines of telegraph, connecting the same with the telegraph system of Prince Edward Island and Canada. (*Distribution only.*)
- 92... COST OF HEATING PUBLIC BUILDINGS:—Return to Order; Statement for each year, since the change in the system, of the cost connected with the heating of Public Buildings (including wages as well as fuel.) (*Not printed.*)
- 93... POST OFFICES AND CUSTOM HOUSES:—Return to Order; Return giving the name of each city, town and village, with the population, in Canada, in which public buildings (Post Office or Custom House, or both) have been erected, or are in course of erection, since 1st January, 1874, together with the cost and estimated cost of each; also, a Statement showing the revenue derived from the public offices in each such city, town or village. (*Distribution only.*)
- 93a... Return to Order; Copies of the reports of architects, in connection with the selection of a site for the Amherstburg Custom House and Post Office. (*Not printed.*)
- 93b... Return to Order; Return giving the quantity of land bought, and price paid, &c., for lands at Amherstburg, required as sites for Custom House and Post Office buildings (*Not printed.*)
- 93c... Return to Order; Copies of all correspondence, etc., relating to the construction of the Post Office and Custom House at St. Thomas. (*Not printed.*)
- 94... PORT STANLEY HARBOUR:—Return to Order; Copies of all statements, in reference to the revenue of Port Stanley Harbour, made by the Great Western Railway Company under the terms of their lease of that harbour, and all reports of Government Engineers in regard to the condition of that harbour. (*Not printed.*)

- No. 95... ANTIGONISH PUBLIC BUILDING:—Return to Order; Statement of the amount expended in connection with, also copies of all correspondence relating to the public building at Antigonish, from November 1st, 1881, to the 15th January, 1884. (*Not printed.*)
- 96... BREAKWATERS:—Return to Order; Copies of all correspondence and all engineers' reports for the past two years, regarding the Ingonish Breakwater. (*Not printed.*)
- 96a. Return to Order; Copies of all correspondence, etc., with the Government, in relation to the construction of a breakwater at Point Escuminac, in the Bay of Miramichi, N.B. (*Not printed.*)
- 96b. Return to Order; Copies of contract entered into by John Sinnott for the building of a breakwater at the mouth of St. Peter's Harbour, King's, P.E.I.; statement of all amounts paid for such work; also the names of the sureties and inspector. (*Not printed.*)
97. ESQUIMALT NAVAL STATION:—Return to Address; Copies of all correspondence between the Dominion and the Imperial Governments in reference to the continued maintenance of the Naval Station at Esquimalt and the continuous presence of at least one of Her Majesty's ships in British Columbia waters. (*Not printed.*)
98. ESQUIMALT GRAVING DOCK:—Return to Address; Copy of Order in Council passed in September, 1883, providing for the payment of \$130,000 to British Columbia, on account of Esquimalt graving dock. (*Distribution only.*)
99. JEMSEG, QUEEN'S, N.B., DREDGING AT:—Return to Order; Copies of report of surveys made with a view to dredging at Jemseg, Queen's Co., N.B., and all correspondence, etc., relating thereto. (*Not printed.*)
- 100... SWAN CREEK, N.B.:—Return to Order; Copies of all reports of surveys made with a view of improving the navigation of Swan Creek and Swan Creek Lake, Sunbury, County, N.B., by dredging or otherwise, and all correspondence referring thereto. (*Not printed.*)
101. McCOURT, D., DISMISSAL OF:—Return to Order; Copies of all correspondence, etc., with reference to Daniel McCourt, lately dismissed from his office as lock tender on the Cornwall Canal, with the date of his appointment, and his age at the time of his dismissal. (*Not printed.*)
102. ADMINISTRATION OF THE AFFAIRS OF THE N.W.T.:—Return to Address; Copies of all representations, etc., of the North-West Council, sent to the Government of Canada, on the subject of the administration of the affairs of the North-West Territories, and the complaints made by, and the grievances of the inhabitants of such Territories. (*Not printed.*)
103. CHAPLEAU, S. J. ST. O.:—Return to Address; Copies of all correspondence, etc., respecting the appointment of Samuel J. St. Onge Chapleau, as a Sheriff in the North-West Territories; also, all complaints and charges, etc., against him while an employé in the Department of Railways and Canals, and the resolutions dispensing with his services in that department. (*Not Printed.*)
104. RICHELIEU AND ONTARIO NAVIGATION CO.:—Return to Address (Senate); Copy of the lease by which the Richelieu and Ontario Navigation Company is in possession of the land upon which are built the barracks situated in the town of Sorel, P.Q. (*Not printed.*)
105. RAILWAY RESERVE ON VANCOUVER ISLAND:—Return to Address; Copies of all correspondence, etc., relative to the rights of settlers or squatters on the railway reserve, Vancouver Island. (*Not printed.*)
- 106 IMMIGRANTS:—Return to Order; Return showing, approximately, the number of immigrants who are supposed to have settled in Ontario in the years 1879, '80, '81, '82 and '83, respectively. (*Not printed.*)
- 106a Return to Order; Return of the number and names of the Immigration Agents employed during the year 1883, with the dates of their appointment, etc.; also, the number still employed, with their salaries and expenses. (*Not printed.*)

- No. 106b IMMIGRANTS :—Return to Order; Statement of the number of persons entering, also leaving, Manitoba by rail, during each month of the year, 1883; also, copies of all correspondence, etc., on which are based the estimates made by the Government of the number of immigrants who have settled in each Province, and in the North-West Territories, during the year; also the number of Canadians who have left the Dominion during the year. (*Not printed.*)
- 107... LIGHTS ON THE ST. LAWRENCE BELOW QUEBEC :—Return to Address; Copies of all petitions, etc., asking for the placing of lights on the River St. Lawrence, north of the Island of Orleans, in the County of Montmorency, in order to protect and facilitate navigation. (*Not printed.*)
- 107a. Return to Order; Copies of all correspondence in relation to the placing of gas floating lights in the River St. Lawrence, below Quebec, for the better guidance of steamers and sailing vessels navigating the said river. (*Not printed.*)
- 108... MILITIA :—Return to Order; Copies of all correspondence regarding the purchase of tents during 1883, by the Department of Militia and Defence. (*Not printed.*)
- 108a. Return to Order; Copies of all correspondence, etc., in connection with the purchase of Moccasins by the Department of Militia and Defence, during the year 1883. (*Not printed.*)
- 108b. Return to Order; Return showing the number of officers, non-commissioned officers and men at present comprising A, B and C Batteries, the Cavalry School and the Schools of Infantry. Also, a Return giving the names, dates of appointment, etc., of the commissioned officers of A, B and C Batteries, the Cavalry School and the three Infantry Schools, distinguishing such as are graduates of the Royal Military College. (*Not printed.*)
- 108c. Return to Order; Copies of all accounts and vouchers, including transport requisitions, rendered by the Canadian Express Company to the Department of Militia and Defence, for transport during the months of May, June, July, August and September, of 1883. (*Not printed.*)
- 108d. Return (*in part*) to Address; Copies of all letters of complaint, and replies thereto, etc., respecting the conduct of Major-General Luard at Cobourg, or elsewhere, sent by Lieut.-Col. A. T. Williams, M.P., or any other person, to the Government. (*Not printed.*)
- 108e. Supplementary Return to the preceding. (*Not printed.*)
- 109... DEWDNEY, LIEUT.-GOV. N. W. T.:—Return to Address; Copies of all correspondence, etc., respecting the appointment of an Administrator of the Government of the North-West Territories in the absence of Lieutenant-Governor Dewdney. All correspondence respecting any mission entrusted to said Lieutenant-Governor, the nature, and the instructions given, etc. (*Not printed.*)
- 110... KINGSVILLE HARBOUR WORKS :—Return to Order; Copy of all petitions, etc., respecting the Kingsville Harbour Works. (*Not printed.*)
- 111... DRAINING OF LAND IN MANITOBA :—Return to Address; Copies of all reports, etc., not already brought down, in reference to the improvement of Fairford River, the outlet of Lake Manitoba; the removal of the sand bar at the mouth of Red River, and the obstructions in Nelson River, the outlet of Lake Winnipeg, with a view to draining the submerged lands in the Province of Manitoba. (*Not printed.*)
- 112... AMERO, ROGER, ARREST OF, ETC.:—Return to Address; Copy of despatches in reference to the arrest and indictment of Roger Amero, a French Acadian, belonging to Digby, N.S., discharged from custody on an indictment for murder, in Massachusetts, U.S. (*Not printed.*)
- 113... PUBLIC HEALTH OFFICERS :—Return to Order; Return showing the names and salaries of Public Health Officers appointed in the various cities of Canada; also, copy of instructions issued to and all reports made by such officers. (*Not printed.*)
- 114... LAKES HURON AND SUPERIOR HARBOURS :—Return to Address; Return of all correspondence between the Governments of the Dominion and Ontario, in reference to the disposal by the latter of lots, covered by water in the harbours of Lakes Huron and Superior, to private individuals. (*Not printed.*)

- No. 115. WELLINGTON BRIDGE, MONTREAL:—Return to Order; Copies of all correspondence relative to the necessity of further accommodation for foot passengers at Wellington Bridge, Lachine Canal. (*Not printed.*)
116. GRAND TRUNK RAILWAY COMPANY:—Return to Address; Copies of all correspondence between the Government of Canada, Sir John Rose, and Messrs. Baring & Glynn, the Financial Agents of the Dominion, in 1875, in relation to the conduct of Mr. Potter, the President of the Company, in decrying the credit of Canada, also the credit of the Province of Quebec, in relation to the effort of the latter to effect a loan in London, or the credit of that Province for the construction of railways therein; also, copies of all correspondence etc., written by Mr. Potter, as President of the Company, reflecting upon or discrediting the credit of Canada, or the Province of Quebec, which led to the writing of the letter or letters to Sir John Rose, before referred to (*Not printed.*)
- 116a. Correspondence respecting an agreement for the sale of the western section of the Quebec lines of the North Shore Railway to the Canadian Pacific Railway Company. (*Sessional Papers only.*)
117. THE QUEEN vs. MERCER:—Return to Address; Copies of the short-hand writers' notes of the proceedings before the Judicial Committee of the Privy Council in the case of the Queen and Mercer, and of the judgment of the court in that case; also, copies of all correspondence and the costs incurred by the Government in connection therewith; also, statement of any proceedings taken by the Government in matters of escheat in any of the Provinces, and for copies of all correspondence, etc., connected with all applications to the Government as to escheated lands, since Confederation, not already brought down. (*Sessional Papers only.*)
- 117a. Supplementary Return to the preceding. (*Not printed.*)
118. JUDICIAL SALARIES, RE-ADJUSTMENT OF:—Return to Order; Copies of any correspondence on the subject of the increase or re-adjustment of the judicial salaries, from the 1st January, 1882. (*Not printed.*)
119. ROBERTSON AND WALLACE, CLAIMS OF:—Return to Order; Copies of all correspondence, etc., connected with the disposal of the west half of Section 6, Township 2, Range 14, west of the principal meridian, Manitoba, and particularly of all papers connected with the claims of John Robertson and of one Wallace to the said lot. (*Not printed.*)
120. FORT McLEOD TOWN SITE:—Return to Address; Copies of all Orders in Council, etc., respecting a town site at Fort McLeod. (*Not printed.*)
121. YAMASKA RIVER AND LAVALLIÈRE BAY:—Return to Order; Copies of the report of Mr. Guerin, Civil Engineer, respecting the explorations made by him on the Yamaska River, and in the neighbourhood of Lavallière Bay (*Not printed.*)
122. LAVAL UNIVERSITY:—Return to Address (Senate); Copies of all correspondence addressed to the Secretary of State for the Colonies, through the Secretary of State for Canada, concerning Laval University of Quebec, since March, 1880 to date. (*Not printed.*)
123. LIFE SAVING CREW AT PORT ROWAN:—Return to Order; Copies of correspondence in reference to a charge against the Captain of the Life Saving Crew at Port Rowan, Norfolk, Ontario, in not saving the lives of the crew of the barque "Fitzgerald," in November, 1883. (*Not printed.*)
124. WHARVES:—Return to Order; Copies of tenders for the extension of the wharf at St. Jean Port Joli, also, of the contract awarded, if such contract was awarded; a Statement of the amount expended, the work done, etc., last year, with the names of the persons, if any, in charge. (*Not printed.*)
- 124a. Return to Order; Report and plans of the surveys made last summer, in St. Anne and St. André, Kamouraska. (*Not printed.*)
- 124b. Return to Order; Copies of all correspondence in reference to the erection of a public wharf and bridge at Upper Woods Harbour, Shelburne, N.S. (*Not printed.*)
125. N.-W. MOUNTED POLICE:—Report of the Commissioners of, for 1883.

- No. 126. PRINCE EDWARD ISLAND:—Return to Address; Copies of all Orders in Council relating to any claim made by the Government of Prince Edward Island for compensation for money expended in constructing or repairing piers in that Province, and to the examination of, and report upon the piers of that Province. (*Not printed.*)
127. Return (*in part*) to Order; Copies of all contracts or agreements entered into by the Postmaster General, since the last session of the late Parliament, for the conveyance of the mails to and from Prince Edward Island, and all correspondence relating to steam communication between the Island and the Mainland while the navigation remains open, and, also, to the winter crossing between Capes Traverse and Tormentine. Return of all trips made by the "Northern Light" during the winter of 1881-82, with her receipts for freights and passage moneys, and the expenses of her management and running; also, copies of all instructions issued to the agent of the Marine and Fisheries Department in Prince Edward Island, relating to the running of the "Northern Light" during the present season, and all correspondence on that subject. Copies of all correspondence, etc., relating to the survey or construction of the railway authorized to be built between Cape Traverse and the main line, on Prince Edward Island. (*Distribution only.*)
- 127... ALPHONSE AUDET, APPOINTMENT OF:—Return to Address; Copies of Orders in Council appointing Alphonse Audet to his present position in the Civil Service. (*Not printed.*)
- 128... LAKE ERIE HARBOURS:—Return to Order; Return of all reports of Government engineers, respecting the construction of a harbour of refuge at Port Stanley or Port Burwell, on Lake Erie, together with the estimated cost of each. (*Not printed.*)
- 128a. Return to Order; Return of all reports of engineers, respecting the construction of a harbour on Lake Erie, in Essex, whether at Leamington, Kingsville or elsewhere, together with the estimated cost of said harbour at each place. (*Not printed.*)
- 129... SKIFFINGTON vs. MICHAUD & DUMAIS:—Return to Address; Copies of all reports, etc., in relation to the action brought by one Skiffington against Thomas Michaud and Florian Dumais, of St. Pascal, in 1881, before the Justices of the Peace, together with copies of the complaints, etc.; also, charges made against the said Skiffington, or respecting him, as to the non-payment of the costs attending the actions by him instituted and dismissed with costs against him. (*Not printed.*)
- 130... DOMINION ARBITRATORS:—Return to Address; Statement giving the names of the Official Arbitrators and secretaries to Arbitrators, appointed to office, with date, salary and duration of office, since 1st July, 1867, up to the present time. In case of appointment having been made, or salaries increased, by Order in Council, copies of such Orders to be annexed to the Statement. (*Not printed.*)
- 131... RIVER ST. FRANCIS, EXPLORATIONS ON:—Return to Order:—Copies of the report of Mr. C. Michaud, Civil Engineer, as to the explorations made by him last autumn on the River St. Francis, with the object of establishing booms upon it. (*Not printed.*)
- 132... CARON, CLOVIS, FISHERY OVERSEER:—Return to Order; Copies of all complaints, etc., made against Clovis Caron, Fishery Overseer, for the Counties of Bellechasse, Montmagny, L'Islet and Kamouraska; also of all documents relating to his appointment to that position, and his duties as such. (*Not printed.*)
- 133... SHIP "BRITANNIA," LOSS OF:—Return to Address (Senate); Copies of all papers connected with the enquiry into the loss of the ship "Britannia," which struck on the North East Bar of Sable Island on the night of the 3rd September, 1883. (*Not printed.*)
- 134... NOVA SCOTIAN RIVERS:—Return to Address (Senate); Copies of all Reports made between 1st March, 1881, and 31st December, 1882, by F. H. D. Veith, Esq., upon the condition of the rivers in Nova Scotia, and in connection with the Fisheries in that Province.
- 135... GEOLOGY OF VICTORIA, INVERNESS AND RICHMOND COUNTIES:—Return to Order; Copies of the Geological Reports made by Mr. Hugh Fletcher, of the Counties of Victoria, Inverness and Richmond, with the maps accompanying the same (*Not printed.*)

- No. 126. DRUMMOND AND MACLEAN, ROGER & Co. :—Copy of an indenture relative to certain contracts entered into by George P. Drummond, and transferred by the said Indenture to Messrs. Maclean, Roger & Co., with the assent of Her Majesty. (*Not printed.*)
- 137... PERSONS CONFINED AFTER SENTENCE IN 1882 :—Return to Address (Senate) ; Return showing, for the year 1882, the number of persons confined after sentence in the prisons, reformatories and gaols, under the control of the local authorities of the several Provinces, the offences of which they were convicted, and the length of the sentence. (*Not printed.*)
- 138... G. B. BURLAND & Co. :—Return to Order; Copies of all correspondence in reference to any contract or contracts for lithographing entered into between G. B. Burland & Co., of Montreal, and the Dominion, showing what offers, if any, have been made by other parties for the performance of similar work, the names and addresses of such parties, and the scale of prices upon which such offers were based; also, the scale of prices agreed upon between the Government and the said G. B. Burland & Co., or any other person. (*Not printed.*)
- 139... HUGHES, D.<sup>c</sup>J., JUDGE :—Return to Address ; Copies of all petitions, etc., preferring charges in regard to the official conduct of D. J. Hughes, County Judge of Elgin, and asking for an inquiry into the same. Also, a copy of the report or judgment on inquiry into the conduct of the said Judge. (*Not printed.*)
- 140... ST. CROIX COTTON FACTORY :—Return to Order ; Statement showing the value of machinery imported for the St. Croix Cotton Factory at St. Stephens, N.B., the date of import, the amount of duties chargeable on the same, the amount paid, also still due, and the security held therefor, and copies of all correspondence on the subject. (*Not printed.*)
- 140a... Supplementary Return to preceding. (*Not printed.*)
- 141... SHIPPING ON LAKES SUPERIOR AND HURON :—Return to Order ; Return showing what vessels navigating the waters of Lakes Superior and Huron were inspected during the past season of navigation, under the authority of the Government, with the names of the Inspectors ; also, a Statement of vessels lost or stranded on these lakes, within Canadian waters, showing the localities where disasters occurred and the number of lives lost in each case, during the season of 1883. (*Not printed.*)
- 142... GOVERNMENT STEAM TUGS AND DREDGES, ETC. :—Return to Order ; Return showing the number of steam tugs, steam dredges and dumping scows bought by the Government or built for the Government, during the year 1883, for use in the Dominion of Canada, showing where they were built, the builders' names, and the price paid for the same. (*Not printed.*)
- 143... METEOROLOGICAL SERVICE AT ST. JOHN, N.B. :—Return to Order ; Return of the amount of salary or allowance made to Mr. George Hutchinson as the person in charge of the Meteorological Service at St. John, N.B. ; also, amount of expenses of Mr. R. J. Stupart, going from Toronto to St. John, and other expenses preparing and fitting up office and instruments ; also, any instructions from the Department of Marine and Fisheries to the Superintendent at Toronto, in reference to the change of officers at St. John, and the removal of Mr. Gilbert Murdock ; also, copies of all correspondence between Mr. Gilbert Murdock and the Superintendent or Deputy Superintendent of the Meteorological Service at Toronto ; also, copies of any petition, memorial or other documents in regard to the above changes. (*Not printed.*)
- 144... WATSON, T. C. :—Return to Order ; Statement of all moneys paid to T. Charles Watson by the Government, showing also the services, if any, performed by said Watson since 1881. (*Not printed.*)
- 145... ONTARIO BOUNDARY AWARD :—Correspondence in connection with, between Ontario and Manitoba.
- 146... LIFE SAVING STATIONS :—Return to Order ; Return showing the location of the Life Saving Stations of Canada, with description of life-boats, buildings, wreck-guns and other life saving apparatus of each station ; also, name and salary of captain, number of men in each crew and their pay, the articles of enlistment, the months during which such enlistment or engagement is binding ; also, copy of instructions and regulations issued for the guidance of life saving crews, and reports received from captains of crews and others, as to number of imperilled mariners rescued, and amount of property saved during the year 1883. (*Distribution only.*)

No. 147.	MINING REGULATIONS :—(Senate) Copy of those governing the disposal of mineral lands, other than coal lands. ( <i>Not printed.</i> )
148...	RIVER THAMES, SURVEYS OF :—Return to Order; Copies of all reports, etc., of the surveys of the River Thames, at the Village of London West, in Middlesex, Ontario. ( <i>Not printed.</i> )
149...	EMPLOYÉS IN PUBLIC WORKS DEPARTMENT :—Return to Order; Statement for the fiscal years 1873-4, 1874-5, 1877-8, 1878-9, 1880-1, 1881-2, and the current year, to date, as to persons employed in the Departments whose remuneration is charged to public works in connection with which they are employed, giving :— 1. The name. 2. The date of first employment. 3. The remuneration. 4. The nature of the service. 5. The works to which the remuneration is charged, with the amount charged to each work; also, Statement giving the names of all persons in the Public Works Department, as extra or copying clerks, whose salaries are or have been charged to particular works, since 1881. ( <i>Not printed.</i> )
150...	RIDEAU HALL AND GROUNDS :—Return ( <i>in part</i> ) to an Order; Return in detail, showing the expenditure in each year since Confederation :—1. For the purchase and maintenance of Rideau Hall and grounds. 2. For furniture and all other moveables supplied. 3. For fuel and light. 4. Similar Return as in 1, 2 and 3 in connection with the Quebec Citadel. 5. For salaries of Governor General and his officials. 6. For the contingencies of the Governor General's office. 7. For travelling expenses of the Governor General and staff, besides those included in 6. 8. For labour and supplies of Dominion Steamers while conveying the Governor General, and for all expenses of every character connected with Rideau Hall. ( <i>Not printed.</i> )
151...	PARLIAMENTARY GROUNDS, OTTAWA :—Return to Order; Reports of Messrs. Scott and Fuller, Architects of Public Works Department, and correspondence, etc., respecting claims of late James Goodwin, for extras in connection with erection of wall in front of Parliamentary grounds. ( <i>Not printed</i> )
152...	DOMINION MONEY SPENT IN THE PROVINCES :—Return to Order: Statement setting forth the exact amount of money expended in each of the Provinces, separately, since their entry into Confederation, up to 30th June, 1883, on works of (1) a strictly general character; (2) a strictly local character.
153...	SECTIONS 4 AND 10, ST. LAWRENCE CANALS :—Return to Address; Copies of all tenders for the enlargement of sections 4 (Rapide du Plat) and 10 (Cornwall) of the St. Lawrence Canals, received on 4th December, 1883, and 12th February, 1884, respectively, as well as of all correspondence, etc., on the same since the 28th September, 1883. ( <i>Not printed.</i> )
154..	GOVERNMENT HERD CATTLE IN N.W.T. :—Return to Address; 1. Return showing all Orders in Council, etc., respecting the sale of Government herd cattle in the North-West. 2. All applications made for the purchase of such cattle. 3. All notices of sale, etc., of such cattle. 4. A statement showing the price paid for such cattle, cost of maintaining the same since purchased, the price obtained therefor, to whom and when sold. 5. All correspondence respecting the sale of said cattle. ( <i>Not printed.</i> )
155...	PAJOT FARM :—Return to Order; Return of all correspondence, etc., respecting that portion of the Pajot Farm, in the town of Sandwich, which is claimed by the Wyandottes of Anderdon. ( <i>Not printed.</i> )



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# REPORT

ON THE

# STATE OF THE MILITIA

OF THE

# DOMINION OF CANADA

FOR THE YEAR

1883.

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PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND OF  
HIS EXCELLENCY THE GOVERNOR GENERAL.

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OTTAWA:

PRINTED BY MACLEAN, ROGER & CO, WELLINGTON STREET.

1884.



## DEPARTMENT OF MILITIA AND DEFENCE,

OTTAWA, January, 11 1884.

MY LORD,—

I have the honor to forward to Your Excellency the accompanying Report relating to the Militia of the Dominion of Canada for 1883, which is respectfully submitted for Your Excellency's consideration.

ADOLPHE P. CARON,

Minister of Militia and Defence.

His Excellency

The Governor General,

Ottawa.



# INDEX TO MILITIA REPORT, 1883.

	PAGE.
REPORT OF THE DEPUTY MINISTER OF MILITIA AND DEFENCE.....	ix — xvi
REPORT OF THE GENERAL OFFICER COMMANDING THE MILITIA.....	1 — 9
REPORTS OF THE DEPUTY ADJUTANTS-GENERAL :—	
Military District No. 1 .....	10 — 18
do 2 .....	18 — 26
do 3.....	27 — 32
do 4.....	32 — 35
do 5 .....	35 — 39
do 6 .....	39 — 42
do 7 .....	42 — 47
do 8 .....	47 — 51
do 9 .....	51 — 54
do 10 .....	54 — 59
do 11.....	59 — ...
do 12.....	59 — 61
INSPECTION REPORT OF CORPS :—	
Military District No. 1.....	62 — 73
do 2.....	74 — 89
do 3.....	90 — 99
do 4 .....	100 — 109
do 5 .....	110 — 125
do 6.....	126 — 133
do 7.....	134 — 143
do 8 .....	144 — 151
do 9.....	152 — 161
do 10 .....	162 — 165
do 12 .....	166 — 169
Report of Lt.-Col. D. T. Irwin, as Inspector of Artillery.....	171 — 177
Report of Lt.-Col. C. E. Montizambert, as Assistant Inspector of Artillery.....	178 — 181
Report of Lt.-Col. W. H. Cotton, as Assistant Inspector of Artillery	182 — 187
Credits Awarded each Battery for General Efficiency .....	188 — 190
Report of Lt.-Col. D. T. Irwin, Commanding the Regiment of Canadian Artillery.....	191 — 195
Report of Lt.-Col. W. H. Cotton, as Commandant, "A" Battery, Regiment Canadian Artillery .....	196 — 198
Report of Lt.-Col. C. E. Montizambert, as Commandant, "B" Battery, Regiment of Canadian Artillery.....	199 — 200
Inspection of Engineer Militia.....	201 — 205
Certificates, Schools of Gunnery.....	206 — 208
do Military Schools.....	209 — 211
do Boards of Examiners .....	212 — 213
Royal Military College of Canada.....	214 — 229
Report of the Director of Stores, etc.....	230 — 246
Government Cartridge Factory.....	247 — 267



# REPORT

## OF THE

### DEPUTY MINISTER.

DEPARTMENT OF MILITIA AND DEFENCE,  
OTTAWA, 1st January, 1884.

To the Honorable

ADOLPHE P. CARON,  
Minister of Militia and Defence.

SIR,—I have the honor to submit the following report of the administration of the Department of Militia and Defence for the year 1883:—

The reports from the General Officer Commanding, the Inspectors of Artillery and Engineers, and the Staff Officers of the twelve Military Districts, embrace the year ending 31st December ultimo. By a reference to these reports, the efficiency and standing of any Battalion or Independent and isolated Corps, in any part of the Dominion, can be ascertained at a glance.

#### EXPENDITURE.

The amount voted for Militia services for 1882-83 was.	\$760,350 00
Balances from 1881-82 brought forward.....	39,338 54

Total available for 1882-83.....	\$799,688 54
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The expenditure from 1st July, 1882 to 30th June, 1883, was .....	734,354 25
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Unexpended Balance on 30th June, 1883.....	\$65,334 29
Amount carried forward.....	60,439 91

Balance lapsed on 30th June, 1883.....	\$ 4,894 38
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The amount voted for Civil Government salaries was...	\$36,350 00
Expenditure .....	34,985 70

Balance lapsed 30th June, 1883.....	\$ 1,364 30
-------------------------------------	-------------

Additional vote, in supplementary estimates for 1883-84, and to be accounted for in reports of that year, to provide for organization of new Cavalry, Artillery and Infantry Schools.....	\$150,000 00
--	--------------

*Public Works.*

The following sums were voted for the care and maintenance, by the Department of Public Works, of properties and fortifications under control of the Department of Militia :

Levis—Fortifications and Military Buildings.....	\$2,500 00
Quebec—Fortifications .....	15,000 00
“ Citadel.....	15,000 00
“ Securing cliff under Citadel.....	2,500 00
“ Cartridge Factory.....	2,300 00
St. Helen's Island—Military Buildings.....	2,000 00
Kingston, Ont.—Fortifications and Military Buildings.	1,025 00
“ Fortifications and Military Buildings (supplementary Vote) .....	550 00
Miscellaneous works and buildings, repairs, construc- tion, &c., of.....	37,500 00

The instructions issued by your direction for the supervision, by a military Engineer Officer, of the works on fortifications, which up to the present have been carried on by the Public Works Department, will cause a great improvement. These works, to be well performed, require the supervision of specialists, such as Military Engineers.

The details of the Militia expenditure for the fiscal year 1882-83 are as follows :

Salaries, Military Branch and District Staff.....	\$23,462 37
Brigade Majors.....	14,912 35
Ammunition, including Cartridge Factory.....	} 124,540 96
Clothing.....	
Military Stores.....	
Public Armouries, and care of Arms.....	51,953 65
Drill pay and Camp purposes; drill instruction.....	256,207 66
Contingencies.....	41,377 42
Drill Sheds and Rifle Ranges.....	9,990 29
Care and maintenance of Military properties.....	7,968 49
Royal Military College of Canada.....	53,678 81
Military Schools and drill instruction in Colleges.....	4,637 70
“ A ” and “ B ” Batteries, Royal Schools of Gunnery, pay and maintenance of.....	124,883 36

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Guard at Government House.....	794 52
Government grant Dominion Rifle Association.....	8,000 00
Purchase of four 40-pounder breech-loading guns.....	1,946 67

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Total expenditure, 1st July, 1882 to 30th June, 1883.....	\$731,354 25
Unexpended balance 30th June, 1883.....	65,334 29

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Total amount which was available for 1882-83....\$799,688 54

The expenditure for Pensions for the fiscal year was :—

Militiamen, and Widows of Militiamen, Upper Canada, War of 1812.....	\$ 5,040 00
Militiamen, Lower Canada, War of 1812.....	390 00
Militia Pensions, consequent on Militiamen having been killed or wounded on active service.....	4,875 00
Gratuities to Veterans of War of 1812-15.....	19,575 50
Total.....	\$29,880 50

---

The number of pensioners under pay on 30th June, 1883, was :—

	Pension
Militiamen, and Widows of Militiamen, Upper Canada, War of 1812.....	64
Militiamen, Lower Canada, War of 1812.....	6
Militia Pensions, consequent on Militiamen having been killed or wounded on active service.....	30
Gratuities to Veterans of War of 1812-15.....	787
Total.....	887

---

The increase in the expenditure for the twelve months ending 31st ultimo, is owing to the formation of an additional Battery of permanent Garrison Artillery (School of Gunnery), a Troop of permanent Cavalry (to form two Schools of Cavalry), and one Infantry School Corps, comprising three Companies, under section 21 of the Consolidated Militia Act, 1883 (46 Vict., cap. 11).

The expenditure for the Royal Military College and for "A" and "B" Batteries has not been increased.

## REVENUE.

The revenues from Militia sources during the fiscal year 1882-83, were as follows:—

Rents of Military Properties.....	\$ 4,034 24
From sale of extra ammunition.....	10,631 22
“ Clothing.....	428 03
“ Military stores.....	531 00
“ Miscellaneous sources.....	457 01
Total.....	<u>\$16,081 50</u>

## THE FORCE.

The Active Militia consists at present, in round numbers, of 37,000 Officers and men, divided into twelve Military Districts, and comprising the following Corps:—

*Cavalry.*

- 3 Regiments.
- 4 Provisional Regiments.
- 2 Squadrons.
- 4 Independent Troops.

*Field Artillery.*

- 1 Provisional Brigade.
- 17 Independent Field Batteries.

*Garrison Artillery.*

- 2 Regiments.
- 4 Brigades.
- 1 Provisional Brigade.
- 18 Independent Garrison Batteries.

*Mountain Artillery.*

- 1 Half-Battery.

*Engineers.*

- 3 Companies.

*Mounted Rifles.*

- 3 Companies.

*Infantry and Rifles.*

- 1 Infantry School Corps.
- 88 Battalions.
- 5 Provisional Battalions.
- 13½ Independent Companies.

The Artillery and Infantry School Corps are included in the above list. The Cavalry Corps has not yet been gazetted.

The report of the General Officer Commanding (Appendix No. 1) shews a marked improvement in the general bearing of the Force. By reference to the Brigade Orders which were issued after each Camp (copies of which are appended to the Major General's Report) it will be seen that the Force, as a whole, has been improving steadily.

The facilities which will be given hereafter to Officers of all ranks, and in each Arm of the Service, to acquire a thorough knowledge of their duties by attending the Schools of Instruction which are now being formed, will have a most beneficial effect.

The Cavalry and Infantry Schools are on the point of being opened. The Barracks at Toronto, St. Johns, P.Q., and Fredericton, N.B., are now ready for occupation by the Officers and men, and recruiting is now going on.

The reports on the Royal Schools of Gunnery, "A" and "B" Batteries, are excellent. "C" Battery, which has already been gazetted, will shortly be organized at Victoria, B.C.

The Royal Military College of Canada maintains the state of efficiency to which it has been brought by its zealous Commandant, Colonel E. O. Hewett, (upon whom the distinction of C.M.G. has recently been conferred by Her Majesty), assisted by his able Staff of Officers.

The General Officer Commanding, in his report, refers to the equipment and uniform of the men, and makes some valuable suggestions concerning the Arms and Ammunition, and respecting the pay of the Staff, all of which will no doubt be duly appreciated.

The Force was called out on two occasions within the year, in aid of the Civil Power, by requisitions of Magistrates acting under section 27 of the Consolidated Militia Act, viz :—At Lingan Mines, Cape Breton, and at Rat Portage. On both these services it is reported that the men turned out promptly, and performed their duties with soldierly steadiness.

The provisions made, in section 27 of the Act, for the payment of the Force when so called out in aid of the Civil Power would be satisfactory, if the Municipalities could be brought to promptly fulfil their obligations. Unfortunately, in some cases, Corporations shirk the payment of the money, and Officers commanding corps are obliged to take legal proceedings, the men in the mean time suffering unless, as sometimes done, the money is advanced by Government. The question presents itself whether, under the existing law, a bond or a deposit of money could not be required in advance from the Municipality.

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STORES.

Contracts for the clothing of the Force have been awarded to Canadian manufacturers; and by the judicious substitution of grey cloth for blue, as the material for Cavalry and Artillery great coats, a large saving will be made in the expenditure for this article of clothing. It is found that this grey cloth can be manufactured of a very superior quality in the Dominion, and at a cheaper rate than can be procured in England.

The Director of Stores gives in his Annual Report (Appendix No. 11), statistics of interest and value respecting the matters in his charge.

I regret to chronicle the demise during the year of a valuable employee in this branch of the service. I refer to Mr. Charles Walkem, whose death is a serious loss to the Department.

## THE CARTRIDGE FACTORY.

The machinery of the Government Cartridge Factory at Quebec was purchased in England, but none of the machines were received with spare pieces of any description, as the estimates did not provide for duplicate punches, dies, &c. It was therefore necessary to make all these in the work-shop of the Factory, before the manufacture of cartridges could be proceeded with. This work on additional machinery was carried on uninterruptedly from March till the end of September, 1882. Manufacturing operations were in consequence not begun until the month of October, and in November same year, all was completed. The plant at present comprises about seventy machines and apparatus.

The plant received from England comprised only lathes, drilling and shaping machines, without any tools whatever. These were obtained from the trade in Canada, special ones being made at the Factory. Many and considerable defects, also, in the machinery as received, were developed during the progress of the work, requiring not merely the remedying of badly fitting pieces, but some important modifications in the design of the machines.

These difficulties have all been overcome, and the whole machinery rendered complete and effective, under the judicious superintendence of Major Prevost, who has proved himself a most valuable Officer.

The permanent staff of employees of the Factory, under Major Prevost's superintendence, consists at present of:—

- 1 Foreman,
- 2 Clerks,
- 5 Mechanics,

1 Engineman,  
2 Labourers,  
1 Caretaker.

---

12

A system of partial payment by piece work, as detailed in the Superintendent's Report (Appendix No. 12), has been adopted and found advantageous. The number of persons now employed under this head is:—

1 Overlooker,  
1 Examiner,  
23 Operatives.

---

25

Thirty seven employees in all.

The Superintendent reports his ability, without difficulty, to manufacture with the present establishment at the rate of 1,000,000 rounds per annum. This amount could be largely increased by a proportionate addition to the staff.

The work, as it progresses, is gauged and thoroughly examined at all its stages.

In order to have no possible doubt about the quality of the cartridges, a board composed of

Lieut.-Col. E. B. Beer, 74th Battalion.

Lieut.-Col. E. G. Scott, 8th Royal Rifles.

Major C. J. Short, "B" Battery.

Captain H. F. Perley, Head Quarters Staff.

Captain G. H. Balfour, 8th Royal Rifles.

2nd Lieut. E. A. Macnachten, Cobourg Battery of G. A.

as ordered by you, met in Quebec, and during several days examined thoroughly cartridges in the different stages of manufacture. They also tested the ammunition by firing from a Whitworth fixed rest, and by individual shooting at the Levis Range.

Their report reads as follows:—

"The Board are of the unanimous opinion:—

"1stly. That the process of manufacture of the Dominion cartridges is perfectly satisfactory, the greatest care being taken in overlooking and testing the component parts of each cartridge, by which the slightest defect or blemish must be discovered. That the powder used is the R. F. G. Waltham Abbey, such as is used at Woolwich in the manufacture of Snider ball cartridges.

"2ndly. That the tests from the Whitworth fixed rests, of the Dominion ammunition, were quite satisfactory, the result being that the variation was much within the limit of the Woolwich test.

"3rdly. The Dominion ammunition gave a better result than the English No. 9 of the years 1877 and 1882, from a fixed rest at 500 yards.

"4thly. The result of the individual shooting on the Levis Range, at 200, 500, and 600 yards, by the squad of 16 men from 'A' Battery C. A. and the 8th Royal Rifles, satisfied the Board of the uniform strength and quality of the Dominion ammunition.

"Therefore: The Board have no hesitation in recommending the Dominion ammunition for issue and general use in Canada.

"The Board, in conclusion, have much pleasure in testifying to the superior qualifications of the Superintendent of the Cartridge Factory, Major Prevost, who afforded every facility in furthering their investigations."

Valuable testing instruments have recently been added; and a range for testing cannon powder has been prepared on the Cove Fields.

The powder required for next year's operations was manufactured in the Dominion, having been purchased from the Hamilton Powder Company. It was tested on this range with very good results.

The work has very considerably increased in all the branches of the Department of Militia and Defence, in consequence of the growth of the service, and the enlarged system of military instruction now adopted. The present Departmental Staff, particularly that of the Store Branch, is barely sufficient to keep up with the work, and will hereafter required to be augmented.

I have the honor to be,

Sir,

Your obedient servant,

C. EUG. PANET, Lt.-Colonel.

*Deputy of the Minister of Militia and Defence.*

## APPENDIX No. 1.

1883.

## REPORT OF THE GENERAL OFFICER COMMANDING THE MILITIA.

OTTAWA, 1st December, 1883.

1. SIR,—For the fourth time it becomes my duty to forward the Annual Reports of those under my command.

2. It will be remembered how, for the last three years, I have laid stress on the importance of discipline being the foundation of military duty, and how that, for this, I have urged most strongly the establishment of permanent schools for Infantry, where Officers and non-commissioned officers may learn, by example, discipline and drill—*i.e.*, their duty.

3. It can, therefore, be readily understood with what heartiness I now congratulate the Militia Force of Canada on the fact that three such Schools have been provided for in the Estimates and are on the point of establishment, and that the Officers who are to command them have been qualifying themselves for the appointments by military studies with Imperial troops in England, and that the Officers of junior grades are similarly qualifying with the Garrison of Halifax, N.S.

4. But though these Schools will, I feel confident, by enabling the Officers and non-commissioned officers to become qualified to teach their men, be of great value to the Militia of Canada, at the same time I feel it my duty to place on record once more my opinion that, to become really efficient, men must be drilled in Camp *annually*—not biennially.

5. Compare the *twelve days' drill in two years*, given to the Militiamen of Canada, with the *one hundred and eighty days in four years* given to the Militiamen of Great Britain:—remember also that in Canada the Militiaman is the first line of defence, while in England the Regular Army is the first line, the Militia is only the second, and there is a third line—the Volunteers,—and it must be conceded how weak Canada is in comparison.

6. The lapse of nearly two years between the drill in Camp of rural corps is, in my opinion, ruinous to military knowledge, and I therefore once more urge that only such numbers should be kept as can be drilled in Camp for sixteen days each year.

As an instance of how the present system works, I may mention that there are companies which paraded in 1881 of fair strength perhaps, but in 1883 were unable to come into Camp stronger than about ten to twenty men; and it follows that more than half of the men of these Companies who paraded in Camp in 1881 will have *no more* drill until 1885, and not then unless they re-enrol for a second term of service. From this it will be clearly seen how essential it is that the Force of rural men should not be greater than the Dominion will consent to send to drill *annually*; and it can be perceived what superior chances the urban corps, who drill every year, have over the rural, who do not. Once more, therefore, I urge that the number of Militia be made proportionate to the sum voted by Parliament, or, *vice versa*, that the vote be made sufficient for the numbers enrolled.

7. I am glad to report that the hope I expressed last year that I should this year find improvement in those Corps I saw in 1881, has been realized. In the majority of the Battalions I observed marked improvement, and I append the remarks I caused to be issued after my visit to each Camp this year.

8. It appears desirable to repeat my recommendations of former years.

9. (1st.) *Permanent Military Schools*—I recommended that *not less than three* should be established, and this number will be, I hope, in working order very shortly. When they have had time to show their utility I feel confident that it will be seen that three are not enough, and that three more will be required, so as to put the several Military Districts in a fair state of equality. I would suggest one at London, for No. 1 District; one at Brockville for Nos. 3 and 4 Districts, amalgamated, and one at Truro, N. S., for Nova Scotia and Prince Edward Island.

10. The head-quarters of the Districts should be at these Schools, and the Commandant of the School and District the same Officer, with the requisite staff under him, thus to insure uniformity of system in each District. The Commandant of the School and District should have the local and *temporary* rank of Colonel, thus insuring his being senior to all other officers of his District, and the title of Deputy Adjutant-General (a *misnomer* for a *commanding officer*) should be discontinued.

11. (2nd.) *Instruction in Camp*.—Not less than sixteen days in camp each year for each rural Militiaman.

12. (3rd.) *Expenditure on Fortifications*.—Again I urge that we have not many Forts and that such as we have should be taken care of, and not allowed to lapse into such a state as are those at Toronto and at Point Pleasant, Halifax.

13. Practical experience, this autumn at Quebec, has shown the wisdom of my recommendation last year that repairs to fortifications should be done under the supervision of Military Engineers; and valuable suggestions have been made by Colonel Hewett, R. E., C. M. G., our able Commandant of the Royal Military College of Canada, on the subject of future repairs to the Citadel and Levis forts. I believe that a small force of Engineers should be enrolled for superintending such services, and for instructional purposes at the College, and it would, *in the end*, be found an economy to have work done under such superintendence, rather than leaving it to the non-military labour of the Public Works Department. It is probable that one of our Royal Military College Graduates (who obtained commissions in the Royal Engineers in 1880 and 1881) might be well adapted for such an appointment.

14. (4th.) *The Royal Military College*—It affords me much pleasure to record that this establishment continues to turn out valuable young men for the services of their Queen and Country; that the eight years' work of the Commandant has been appreciated, and that Her Majesty has been graciously pleased to appoint Colonel Hewett, R. E., a Companion of the Order of St. Michael and St. George.

15. I regret, however, that the number of Cadets does not keep up to that which is desirable. It is evident that, though employers have found out the value of the Graduates who have passed out of the College, the advantages obtainable from the education are not yet sufficiently known and appreciated by parents. I would therefore suggest that steps be taken by extensive advertisement in the influential newspapers of the several Provinces, to make known far and wide how good and how economical an education can be obtained; and again I would recommend that prizes (at least four) of appointments in the Civil Service of the Dominion be given to graduates from the Royal Military College, similarly to the commissions in the army awarded by the Imperial Government; and especially I would recommend that vacancies in our permanent Corps of Militia be offered to Graduates from the Royal Military College. I have understood that hopes to this effect were held out at the establishment of the College, but have not yet been fulfilled. The more the College is encouraged, and the more the number of Cadets kept up, so much the more valuable will be the young men attainable therefrom for the public services of the Dominion.

16. Once more I have to ask that ventilation to the College may be carried out—its absence being bad for the health of all.

17. Once more also that the Cadets be put on an equal footing, as Civil Engineering and Land Surveying Students in other educational establishments, such as the McGill and Toronto Colleges, and be allowed to count time towards apprenticeship—and that legislative measures be taken, if necessary, to this end.

18. (5th.) *City Corps*.—Of these I can continue to speak most highly. The "Queen's Own" have not fallen off—though they have to bear a loss by the appointment of Lieut.-Colonel Otter to command an Infantry School. The 6th "Fusiliers" at Montreal continue, under Lieut.-Colonel Gardner, to be in first rate order—and afford an example which others closely follow. On the 8th November I had very great satisfaction in inspecting at Hamilton and Toronto, the 13th—the "Queen's Own Rifles"—and the 10th "Royal Grenadiers"—an aggregate of 1,250 men who were fit for service.

19. (6th.) *Equipment and Uniform*.—Once more I submit that all unserviceable and obsolete equipment, should be got rid of, and that every corps receive serviceable equipment, including boots and a serviceable head-dress—so that each man may be fit for service whenever called on.

20. We have, I believe, knapsacks and valises in store which *suffer by being kept there*, and which would be put into good order, and *so kept*, if issued to careful Battalions of Militia. I urge that all we have be so issued, and that what more may then be required may be obtained of "Oliver's" pattern—and that pipeclay be abolished.

21. The Kilmarnock cap issued by Government is good for neither winter nor summer, nor is it liked by the men. In the climate of Canada a light, cool helmet should be issued for summer wear, and we should have a full supply of fur caps and mitts in store for winter.

22. An instance to prove how necessary is a supply of boots occurred this year when a detachment was called out in aid of Civil Power from Halifax, and when the boots which were requisite, had to be *borrowed from the Imperial stores at Halifax*.

23. *Cavalry Equipment*.—I was sorry to find the saddlery at the Camp, Sussex, N.-B., in bad order from its excessive age—so bad as to be likely to injure both horse and rider.

Now that a cavalry school is to be established, I would once more urge that a new uniform be adopted by the cavalry *requiring neither pipeclay nor yellow washing*. A handsome but economical uniform of blue with scarlat facings and trouser-stripes, and with brown, or black, belts, and a serviceable helmet—this would tend to comfort as well as serviceability, and would, I am convinced, *soon become very popular*.

24. (8th.) *Artillery and Rifle Associations*.—Both continue to prosper. The former sent a team to Shoeburyness this year under Lieut.-Colonel Macdonald of Guelph, and again brought home the "go as you please" prize for shifting ordnance given by his Excellency the Marquis of Lorne, K.T.

25. The latter sent home a team of Riflemen under Lieut.-Colonel Otter, "Queen's Own Rifles," which were fairly successful at Wimbledon. The Rifle Association has to bear a heavy loss in the resignation of the President, Colonel Gzowski, A.D.C. to the Queen, after sixteen years of most valuable assistance to the Association. I hope that to both these Associations the Government of the Dominion will afford pecuniary assistance as heretofore.

26. I am glad to have received good reports of the several District Associations.

27. (9th.) *Arms and Ammunition*.—I wish I could report that, in addition to the 75 Martini-Henry rifles obtained in 1882, on loan, from the National Rifle Association for the use of competitors at Wimbledon, the Militia of Canada had more effective rifles than the old Sniders, which are, many of them, I am informed, becoming much worn in the grooves and therefore unserviceable. It should be remembered that troops cannot be expected to compete with good heart against others possessing superior rifles—and that as our force is small, so should it be armed with the *very best* rifle.

28. *The Small Arms Ammunition Factory* at Quebec is in working order, and a Special Committee has tested and reported on the new Snider ammunition made thereat.

29 As regards *Ordnance*. As we possess none of the enormous heavy shell-guns of the present day, nor any able, effectually, to oppose such guns, nor to pierce the modern armour-clad war vessel, the establishment of a sub-marine mining corps is worthy of serious consideration for the defence with torpedoes of our rivers, harbours and shores, and for this the small corps of Engineers I am advocating would be especially useful.

30. A certain number of small gun-boats of light draught, each carrying one heavy gun, would also be of great service.

31. (10th.) *Staff*.—It affords me pleasure to record my thanks to the officers commanding Camps, and to the Staff generally, for their assistance to me during the year.

32. One of the Staff Officers I must mention as having done especially good service. Lieut.-Colonel Crewe-Read, an officer of twenty years' experience with the Militia of Canada, who commanded, with tact and discretion, the detachment called out in aid of Civil Power near the Lingan Mines, Cape Breton.

33. While mentioning Lieut.-Colonel Crewe-Read, I beg to place on record also that the detachment—officers, non-commissioned officers and men—deserve credit for the manner in which they performed their duty, under him. I hope they have ere this received all sums due to them, for on such occasions *prompt payment makes willing service*. The detachment consisted of Captain Hill's Company of the Victoria Provisional Battalion "Argyle Highlanders."

34. I beg to bring to notice that a second Staff Officer at Headquarters is necessary, in order to permit occasional and well-deserved relaxation to the Adjutant-General; as such an Officer is provided for in the Militia Act, I hope one may be appointed without delay.

35. I must once more urge an increase to the pay of the Staff, and especially to that of Brigade Majors, to place them more on an equality with the Officers of Cavalry, Artillery and Infantry Schools, also that on retirement after long and good service they may receive a *pension for the rest of their lives*, as do the Adjutant-General and officers of Civil Departments. I think, also, that, in fairness, lodging money should be granted to all not occupying Government quarters.

36. (11th) *Pay*.—The sad weakness of many of the companies attending the Camps, in spite of orders issued, establishes the necessity for doing something to induce men to act up to their promises at enrollment and attend Camp when ordered. To give more pay is one method. As this has already been done as regards Officers and non-commissioned officers, I hope it may also be done for the men. When it is remembered that a dollar a day is by no means a high wage for a labouring man, and that the rural militiaman who comes to camp has frequently to pay a *substitute on his farm*, an increase to the present pay of the Militia appears reasonable. Another method might be to stop drill pay from Captains whose companies do not come to Camp in fair numbers, say two thirds of total establishment. Ample notice, say four months, should also be given as to the date of the Camp, so that the men may make arrangements for their labour at home to be done by others during their absence.

37. (12th.) *Discipline*.—I beg to repeat my recommendation that power be given to Commanding Officers of corps, in case of serious misconduct to dismiss the offender from the corps, with the proviso that such dismissal be published in battalion or corps orders, and an immediate report of full particulars furnished to Headquarters, Ottawa, for approval. This power would be but rarely used, but the possession of it would, I am convinced, be beneficial to the service.

38. (13th.) *Maps*.—Once more I bring forward how very important the possession of a supply of good maps on a proper scale would be in case of active service, and how instructive and useful it would be to the Cadets of the Royal Military College were those who may be qualified employed in the production of these maps.

39. (14th.) *Signalling*.—It also appears to me very desirable that a thoroughly qualified Officer should be appointed to teach on one uniform system, with flags and heliographs, the corps of signallers which the zeal of our Volunteers is causing to spring up in various parts of the country. On that thorough uniformity of system

depends whether, in the day of trial, the well intended energies of these enthusiasts shall, or shall not, be of real service.

40. (15th) *Changes during the past year.*—The formation into one *Regiment* of artillery of the two Schools of Gunnery, "A" and "B" Batteries, together with a third Battery, "C," to be formed for service in British Columbia, is a very important fact to record and on which to congratulate the Militia, as tending to ensure uniformity of system in the Schools, and the certificates emanating therefrom, as well as in the Artillery generally. Under Lieut. Colonel Irwin (retired List, Royal Artillery) who has for many years commanded the Royal School of Gunnery at Quebec, I have every confidence that the Regiment will prosper.

41. The establishment of *Schools of Cavalry and Infantry* is also a noteworthy feature of this year, 1883-84, and one which will, I hope, do much good.

42. As regards the Cavalry I hope that the whole Troop may be formed under the Commanding Officer at whatever locality is best fitted, as regards barracks and stabling for men and horses, and no part sent on detached school duties until the Commanding Officer reports them thoroughly fit for such service.

43. In the selection of Officers to serve in these Schools the utmost care is necessary. On their ability and example will depend the future of the Militia of Canada; therefore none but officers of approved worth and regularity of habits should be nominated, and Certificates of qualification should be required before their final confirmation in the appointment. For such appointments the Graduates from the R. M. College appear to me to have the strongest claims. I am glad to mention that two Graduates from the Royal Military College, who obtained commissions in the Imperial Army, and have since seen active service in Egypt, are to be permitted to be seconded from their Regiment, (the South Staffordshire), for service with these schools; such connection between the Imperial and Dominion services may, I hope, be frequent, as tending much to the benefit of the Militia of Canada, and towards keeping up a desirable spirit of comradeship between the Mother Country and her great Colony.

44 (16th.) In conclusion. I beg once more to record my opinion that the Militia of Canada, being strong, healthy, active men, enured to out-door labour, and temperate in their habits, are the making of excellent soldiers, but they must be brought together for discipline and drill each year, and they must be properly equipped. Then, if armed with as powerful weapons as their opponents, I feel confident that they will emulate the deeds of their Ancestors.

I have the honor to be, Sir,

Your most obedient servant,

R. G. A. LUARD,

Major-General Commanding the Militia.

To the Honorable

The Minister of Militia and Defence,  
Ottawa.

P. S.—To the several Reports forwarded I append remarks.

R. G. A. L., M. G.

Nine Camp Reports are appended.

(Camp of Military District No. 1.)

BRIGADE CAMP,

LONDON, 28th June, 1883.

Brigade Orders.

No. 1.

The Major General Commanding has pleasure in requesting Lt. Col. Jackson, commanding the Camp of No. 1 District, to inform those under his command that

the Major-General is on the whole pleased with what he has seen to-day. Where irregularities had to be noticed, it is quite evident that it is due to inattention to the orders issued regarding the proper chain of responsibility which should be carried out. Lieut. Colonels should see that Captains carry out this chain of responsibility in the Troops, Batteries or Companies under their command; at parades the men should fall in by squads, and be inspected first by the non-commissioned officers, then by the subaltern officers, afterwards by the Captains. The Militia should remember how short the time is that they are permitted to attempt to learn their duty, and that unless they set about it in a proper manner they will not succeed:—only through the carrying out of the system of responsibility can they hope for success.

The Major-General can congratulate the Artillery on its creditable turn-out and appearance, and as regards the Infantry, is glad to be able to say that he has never before seen so many men of the Militia with knapsacks, and so many properly equipped, but there is still much to be desired, as to water-bottles and haversacks.

The Major-General has had much pleasure in receiving a very satisfactory report of the quietness and good order of the men during this encampment, and has only to regret that the weather has been so inclement.

By order,

M. AYLMER,

Lieut.-Colonel, Brigade Major.

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*(Camp of Military District No. 2.)*

CAMP NIAGARA, 30th June, 1882.

(1.) It is with much satisfaction that the Major-General Commanding has made his inspection of the Troops in Camp at Niagara to-day.

(2.) The improvement in the turn-out and equipment of all the Troops since his first visit two years ago is marked.

(3.) He is sure that the men now understand that without proper equipment to carry great-coats, food, water and a change of clothes, they cannot feel themselves fit for service.

(4.) Notwithstanding the wet weather through which the men have had to go, he can congratulate them on the soldierly appearance, and, on the whole, the cleanliness he observed to-day—all were not equally to be commended—but he hopes that those whose appearance he could not praise will take example by their neighbours whom he had the pleasure of commending, and that, in future Camps at Niagara he may be able to give unqualified praise to all.

(5.) He begs Lieut.-Colonel Denison to express to all ranks the thanks of the Major-General for their very evident endeavour to do their duty.

R. G. A. LUARD,

Major-General Commanding the Militia.

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*(Camp of Military District No. 3.)*

COBOURG, 20th September, 1883.

The Major-General Commanding regrets he cannot give as much praise as he would wish to the Troops of the 3rd Military District, at his inspection to-day.

One Regiment—the 57th—was more complete in its equipment, and better turned-out than the others. Though some of the Companies in Camp came most creditably up to the full strength of forty-two, there were others which did not muster a total of ten—a most unsatisfactory weakness. He fully believes that exertions

were made by the Camp Commandant and Staff to improve the state of things; but he did not observe much uniformity of turn-out, and is sorry to be convinced that that chain of responsibility, which he has so strongly inculcated regarding the duties of Captains, Subalterns, Sergeants and Corporals, must have been neglected or only partially attended to. He is, however, glad to be able to record that it has been reported to him that the conduct of the Troops has been very satisfactory.

R. G. A. LUARD,

*Major-General Commanding the Militia.*

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*(Camp of Military District No. 4.)*

BROCKVILLE CAMP, 3rd June, 1883.

"The Major-General has had reason to be pleased with what he has seen of the Troops in Camp at Brockville to-day.

"Considering the wet weather which has been experienced the turn-out was satisfactory, and the movements of the Troops such as shewed that, with the large number of recruits in the ranks, much trouble must have been taken by all.

"All ranks must be aware that, with haversacks and great coats only, they are unfit for active service; they require the means of carrying meat (and a mess-tin in which to cook it), and water, also a knapsack or valise to carry a change of clothes.

"The Major-General is sorry that all are not yet thus equipped, but he hopes in time these things may be obtained.

"He begs that Lieut. Colonel Maunsell will make known to those under his command the Major-General's satisfaction at the state of the Camp on this his second visit to Brockville."

R. G. A. LUARD,

*Major-General Commanding the Militia.*

True Copy—

Major General's Memorandum.

THOMAS BACON,

Lt. Col., B.M.

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*(Camp of Military District No. 5.)*

CAMP ST. JOHN'S, JULY 5th, 1883.

The Major-General has seen the Troops in Camp at St. Johns to-day, and regrets much that he is unable to congratulate them. Considering the wet weather the men have had to undergo, credit may be given for the attempts which have been made towards cleanliness—but, with some exceptions the strength per Company brought into Camp is much to be deplored. When a Battalion of seven Companies can only produce twenty-four officers and 117 men, and another Battalion of eight Companies can only produce twenty-one officers and 112 men—the regulation strength of a Company being three officers and forty-two men—and when one Company comes into Camp with only one officer and two men, and another with two officers and six men, the Major-General can only think that Company Officers have failed to do all in their power. One Battalion only can the Major General praise for the strength brought to Camp—the 58th Battalion, with twenty-seven officers and 382 men for ten Companies.

2. Of the Cavalry one Troop, that from Montreal, deserves credit—as also does the Shefford Field Battery.

3. From what he saw to-day he is convinced that the Staff of the Camp have done all in their power to put into proper form the large proportion of recruits assembled on this occasion, and he begs Lt.-Col. Van Straubenzee to convey the Major-General's thanks to the Staff for their exertions.

R. G. A. LUARD,

*Major-General Commanding the Militia.*

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*(Camp of Military District No. 6.)*

LAPRAIRIE, 5th July, 1883.

The Major-General is glad to be able to speak favourably, on the whole, of what he has seen in the camp at Laprairie to-day. Weakness in numbers is the great defect. A company consisting of only two officers and eight men, total ten, speaks for itself as an unsatisfactory state of things—the Major-General also observed irregularities which would not have occurred had the chain of responsibility, which is clearly laid down in the general orders issued for all Camps this year, been properly carried out. On the whole it is evident that trouble must have been taken by all ranks. To all, therefore, the Major-General has to express his approval of their exertions.

R. G. A. LUARD,  
*Major-General Commanding the Militia.*

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*(Camp of Military District No. 7.)*

The Major-General has had great pleasure in inspecting the camp at Pointe Lévis to-day; a very marked improvement in what he has seen here in former years; strong regiments of fine men, and but very few weak Companies.

To Colonel Duchesnay and the officers of his Staff, and also to the Field and Company Officers of Battalions great credit is due, and the Major-General requests the Commandant of the camp to make this opinion known to all ranks.

R. G. A. LUARD,  
*Major-General Commanding the Militia.*

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*(Camp of Military District No. 8.)*

SUSSEX CAMP, 4th October, 1883.

It has given great satisfaction to the Major-General Commanding to see the manner in which the troops in Camp at Sussex turned out for inspection to-day. So creditable a turn-out could not have been accomplished without much trouble on the part of all ranks. To all, therefore, from the Commandant and his Staff, and from the Officers commanding regiments downwards, the Major-General expresses his hearty thanks. What now remains to be obtained is the necessary equipment;—without serviceable saddles the cavalry are unfit for the field, and the Major-General regretted to observe that much of the saddlery is unserviceable. The Infantry, also, are wanting in the equipments necessary for service:—Without the means of carrying a change of clothes, or of carrying, or cooking, their rations of meat, and without boots, however willing the men, their efforts on active service would be vain. He hopes, therefore, that to men who have proved their willingness and good conduct the necessary equipments may not much longer be wanting.

R. G. A. LUARD,  
*Major-General Commanding the Militia.*

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*(Camp of Military District No. 9.)*

PICTOU, 13th July, 1883.

The Major-General has visited the Camp at Pictou to-day with much pleasure. It was very satisfactory to him to see so many cleanly turned out Militiamen, although there are many more recruits than it is desirable to have. It was satisfactory to observe that most of the Companies came in good strength, and many have brought the full number, forty two.

The Major-General is glad to learn that the orders on the subject of the chain of responsibility, and for this purpose the falling in, on parade, by squads, have been carried out. Without this it would, he feels sure, have been impossible to make so many recruits into such a fairly turned out and soldier-like body of men.

The men in Camp have attained a sufficient knowledge to be aware that without knapsacks or valises to carry a change of clothing, and without mess-tins and water-bottles to carry meat and water, they are not fit for active service. A portion of the force in Camp to-day has had practical proof, at Lingan, within the last year, that it is so.

The Major-General hopes that the deficiency of equipment he observed to-day may, when he next has the pleasure of seeing these Battalions, be amended.

He begs the Lieutenant-Colonel Commanding to make known to all ranks the Major-General's satisfaction with what he has seen to-day.

R. G. A. LUARD,

*Major-General Commanding the Militia.*

## APPENDIX No. 2

## REPORTS OF THE DEPUTY ADJUTANTS-GENERAL.

## MILITARY DISTRICT No. 1.

DEPUTY ADJUTANT-GENERAL'S OFFICE,  
LONDON, ONT., 29th November, 1883.

SIR,—I have the honor to submit for the information of the Major-General Commanding, this my Annual Report on the state of Militia in Military District No. 1, together with "Tabular Inspection Report," to which I respectfully refer.

The authorized established strength of existing Corps of Active Militia in this District as laid down in Militia List, is 4,496, and is composed as follows,—42 Non-commissioned Officers and men per Company.

		Officers and Men.	
1st Regiment Cavalry, 4 Troops..	.....	187	
1st Prov. Brigade Field Artillery, 2 Batteries.....		160	
London Field Battery, 1 " .....		80	
Sarnia Battery of Gar. Artillery, 1 " .....		45	
7th Battalion "Fusiliers".....	7 Co's.	344	
22nd " Oxford Rifles.....	8 "	392	
24th " Kent Infantry.....	7 "	344	
25th " Elgin " .....	7 "	344	
26th " Middlesex Light Infantry.....	8 "	392	
27th " Lambton Infantry.....	6 "	296	
28th " Perth " .....	6 "	296	
29th " Waterloo " .....	6 "	296	
30th " Wellington Rifles.....	10 "	488	
32nd " Bruce Infantry.....	8 "	392	
33rd " Huron " .....	9 "	440	
Total.....	90	4,496	(1)

*Drill Companies in Schools.*

Collegiate Institute, London .....	1 Co.	40
St. Thomas High School.....	1 "	40
Mount Forest " .....	1 "	40
	3	120

Number of Active Militia authorized to perform Drill, 1883-84 :—

		Officers and Men.
In Camp .....		2,611
At Headquarters.....		389
Total all arms .....		3,000

The following Corps performed drill in Brigade Camp at London, which assembled on June 22, 1883.

	Officers and Men.	Horses
Brigade Staff.....	16	6
1st Regiment Cavalry, 4 Troops.....	124	120
1st Prov. Brigade Field Artillery, 2 Batteries.....	140	57
London Field Battery, 1 ".....	71	29
22nd Battalion, 8 Companies.....	262	2
24th " 7 ".....	234	4
25th " 6 ".....	239	5
27th " 6 ".....	259	4
28th " 6 ".....	201	4
30th " 10 ".....	404	5
32nd " 8 ".....	345	5
<b>Total in camp.... 58</b>	<b>2,295</b>	<b>241</b>

The following Corps performed drill at Local Headquarters :—

Sarnia Battery of Garrison Artillery, 1 Battery.....	45	
7th Battalion " Fusiliers," 7 Companies...	314	5
<b>Total number drilled..... 66</b>	<b>2,654</b>	<b>246</b>

The followings corps were relieved from performing the annual drill :—

26th Battalion, 8 Companies.	
29th " 6 "	
33rd " 9 "	

No. 5 Company, 25th Battalion, *failed to turn out.*

#### BRIGADE CAMP OF LONDON.

On the 22nd June a Brigade Camp was formed on the Carling Farm at London, composed of the Corps previously named, the following being the names of the officers who served on the Brigade Staff.

Lieut.-Col. Jackson, D. A. G., in Command ; Lieut.-Col., Hon. M. Aylmer, Brigade-Major ; Lieut. S. F. Peters, 7th " Fusiliers," Assistant Brigade Major ; Captain and Brevet Major Miller, 7th " Fusiliers," Orderly Officer ; Hon. Major H. G. Reed, Pay-Master, 24th Battalion Camp Quarter-Master ; Captain and Quarter-Master J. B. Smyth, 7th " Fusiliers," Supply Officer ; Lieut. Robert McEwen, 26th Battalion, Provost Officer ; Surgeon-Major Swan, 22nd Battalion, Staff Medical Officer.

We are again indebted to the Municipal authorities of London for having laid down about four thousand feet of water pipes, with a hydrant for the use of each Corps, giving an abundant supply of pure water.

They also provided horse troughs, latrines and other necessary buildings, and graded the roadway or entrance to the Camp.

I would here express my thanks, not only to the City Council, but also especially to the Mayor, Board of Works and City Engineer, for the kind and prompt manner in which these necessary improvements were carried out, much to the comfort of the men and the success of the Camp. (2)

To the Hon. John Carling we are again especially indebted for his kindness (through the City Council) in granting the use of his fine farm for Camp and drill grounds, and also for use of the same ground on the Queen's Birthday, when we received a visit from the " Queens Owen Rifles " and 10th " Royal Grenadiers " of Toronto, which will be referred to more particularly hereafter.

*1st Regiment of Cavalry, London, 4 Troops.—Lieut.-Colonel Cole, Commanding.*

The whole of this Regiment had not been assembled at one place for many years, consequently that cohesion and *esprit-de-corps* so necessary for the success of a Regiment was very much wanting; experience teaches, that unless the whole of a Corps can be called out it is better to dispense with the drill by units until all can be assembled. Many commissions are vacant and it is rumored that several Officers whose names appear on the list have left the country, consequently efficiency cannot be expected until these defects shall have been remedied and Officers become qualified for their work. Two or three competent Instructors should be sent to this corps from the schools when it again assembles, these, to assist the few competent Officers would much improve the Regiment if properly kept up to their work. (3) (4)

I am glad to be able to report the re-organization of No. 1 Troop at St. Thomas; although all new, both men and horses were good, and the former appeared anxious to learn their duties, fair progress having been made. The horses of the other three troops were better than I had previously seen, and on the whole (considering the difficulties), fair progress was made by the Regiment.

The Officers' uniforms are not suitable, no two, so far as I could see, being of the same pattern there could be seen on parade at the same time, one with tunic and forage cap, some with patrol jackets and forage caps, one with white blouse, and one with rifle tunic and glazed cap; this diversity of uniform would ruin any corps, and can only be remedied by the firm determination of the Commanding officer.

The saddlery and horse appointments of No. 3 Troop are very old and much out of repair with many deficiencies (5.) Lieutenant Neville, the Adjutant and Lieutenant Stothers of No. 2 Troops were of much service as Instructors.

*1st. Provisional Brigade of Field Artillery, Guelph. — Two Batteries — Lieut.-Col. Macdonald, Commanding.—(The Commanding Officer not in Camp.)*

This Corps turned out in a highly creditable manner, and was inspected by Lieut.-Col. Irwin, Inspector of Artillery, to whose report I would refer. Lieut.-Col. Macdonald is fortunate in having such efficient officers as Majors Nicoll and Hood in command of his two Batteries. (6)

*London Field Battery, London.—Major John Peters, Commanding.*

This Battery turned out in good strength with many recruits. Under the diligent instruction of the several officers, rapid progress was made. Major Peters is well supported by Captain Williams and his subalterns. I would also refer to report of Inspector of Artillery as to this corps. (7)

The efficiency and appearance of the whole of the Artillery added much to the Brigade in Camp. Major Peters being the Senior Artillery Officer present, was placed in command of the three Batteries.

*Sarnia Battery of Garrison Artillery, Sarnia.—Captain Ellis, Commanding.*

This Corps performed drill at Local Head quarters, and was inspected on the 26th September by the Inspector of Artillery, the Deputy Adjutant-General being present.

The men paraded in marching order, very clean, soldierly in appearance and well appointed. Drill consisted of marching past, which was fair; manual and firing exercise and Company drill indifferent. As the battery knows nothing of Artillery drill, the men are simply Infantry in Artillery uniform; as previously recommended, I would strongly urge that this corps be changed to Infantry (8); an insulated battery doing a very little infantry drill at local head-quarters is not desirable, and gives little return indeed for the money expended upon it.

*7th Battalion "Fusiliers," London.—Lieut.-Col. Walker, Commanding.*

This corps performed drill at Local Head quarters and paraded in brigade on the Queen's Birthday with the "Queens' Own Rifles" and the 10th "Royal Grenadiers," also on Dominion Day with the Brigade in Camp. On both of these occasions they presented a very creditable and soldierlike appearance and performed the several movements in a satisfactory manner. The equipment is much improved. More parades in marching order are desirable (9).

*22nd Battalion "Oxford Rifles," Woodstock.—Lieut.-Col. Cowan, Commanding.*

This battalion did not turn out so strong as when in camp in 1881 (I would here state once for all that the deficiency in numbers in all Corps is attributed to the large number of young men who have gone to the North-West, and also to the great demand for labor and the high price paid therefor, (10) men feeling that it does not pay to be patriots under such circumstances) Many of the Officers of this Corps are efficient and painstaking, but on the whole there appears to be something wanting as to the improvement in drill and discipline was not quite what I had expected; considerable progress, however, was made, and the Corps presented a fair and clean appearance; as the County authorities take an interest in the battalion, and vote them certain grants, there appears to be no reason why its former high standing should not be maintained. There is, however, a difficulty in this as in other Corps, in procuring Officers. I was favourably impressed with the interior management of No. 1 Company by Captain McQueen and his subalterns. The guard furnished by this Company the first day was almost perfect, and subsequent guards from other Companies were highly creditable.

*24th "Kent" Battalion of Infantry, Chatham.—Lieut.-Col. Baxter, Commanding.*

This corps turned out stronger than in 1881, but No. 3 Company, Ridgetown, was particularly weak, while in 1881 it was the strongest in the Battalion. The head-dress worn into Camp was neither regulation or slightly, (11) although there are strong objections to the Regulation Forage Cap, no Commanding Officer should allow so great a deviation from the authorized pattern of head-dress. The work in Camp was fairly carried out and satisfactory progress made. The Guards paraded clean and creditable. No. 7 Company, Windsor, Captain Cheyne, although not so strong as last year, was highly satisfactory and was awarded the prize of \$30 given by Lieut.-Col. Baxter and Major Martin for the cleanest arms, accoutrements and clothing, best dressed and drilled Company of the Battalion, Lieut.-Col. Hon. M. Aylmer and Major Miller being the Judges.

*25th "Elgin" Battalion of Infantry, St. Thomas.—Lieut.-Col. O'Malley, Commanding. (12)*

This Corps turned out stronger than 1881. No. 5 Company is still disorganized and did not muster; each man had been provided with a white cap cover, the equipment had been improved, and consequently the Battalion presented a much more creditable appearance. There are several of the Officers efficient and painstaking and the Corps showed a marked improvement over its condition in 1881, but on the whole discipline was slack, the men were not well kept up to their work, late on parade, and frequently late and untidy at Guard Mounting.

I am glad to note the continued efficiency of No. 7 Company, Leamington, Capt. Ley, which always paraded in a clean, soldierly and creditable manner, their steadiness and drill showed how carefully they must have been instructed before leaving home.

*27th "Lambton" Battalion of Infantry, Sarnia.—Lieut.-Col. Fisher, Commanding.*

This Corps paraded in good strength and in much better order than in 1881. Duties well carried out, improvement in drill and general appearance very marked

and satisfactory (13). The most of the Officers appeared in proper undress uniform, with the new forage cap. The Commanding Officer is zealous and efficient and appears to be well supported by his Officers, all of whom take much interest in the advancement of the Corps; to this the great improvement may be attributed. The few Officers who have not procured proper uniforms should do so at once; at present they are a blot upon the Corps.

*28th "Perth" Battalion of Infantry, Stratford—Lieut.-Col. Scott, Commanding.*

This Corps had the advantage of having been in camp last year, and paraded considerably stronger this year, presented a better appearance and showed more satisfactory progress (14). The discipline is not quite up to the standard, and too many men appeared to escape drill. I regret more attention was not paid to the orders relating to handing over the Camp equipment on the last day, causing much inconvenience to the Camp Quarter Master. The reorganization and increased strength of Nos. 3 and 4 Companies, St. Mary's, is noted with pleasure; the Guards paraded very fairly.

*30th "Wellington" Battalion of Rifles, Guelph—Lieut.-Col. Charles Clarke, Commanding.*

This Corps also had the advantage of having been in camp last year, and paraded considerably stronger this year (15). Duties well and satisfactorily performed, steady progress in drill, guards clean and well paraded; a great pleasure to have such a Battalion under one's command (16) while all were good, No. 6 Company, Eramosa, Captain Mutrie, paraded particularly smart and clean for inspection. I understand the County Municipal Authorities take much pride in this Corps, and supplement the Government pay by a liberal grant.

*32nd "Bruce" Battalion of Infantry, Walkerton.—Lieut.-Col. James Cooper, Commanding.*

This corps paraded as usual in good strength. The officers showed much zeal, and being assisted by Sergt. Billman, of the Royal School of Gunnery as Drill Instructor, good progress was made. The young Officers and the Non-commissioned Officers received special instruction, this, in addition to being commanded by an efficient Officer, ensured satisfactory progress. The Guards were particularly well paraded, (17) excepting that sometimes the rifles were not as clean as they should be. I am glad to confirm my former favorable report on this Corps. The county municipal authorities take just pride in their County Battalion, and supplement the Government pay in a liberal manner.

I regret having to report a very painful and serious accident to Major Eckford who was violently thrown from his horse and afterwards kicked in the head, from the effects of which he has not yet fully recovered.

#### *Brigade Camp.*

Although the weather proved very wet, and that we had two Sundays in camp, with from fifty to seventy-five per cent. recruits in many of the corps, progress in the various duties was very satisfactory, and the conduct of the men excellent.

The Major-General Commanding inspected the Camp on the 31st July, and expressed himself as being pleased with the Brigade,

I regret to have to report a serious accident to Surgeon-Major Swan, 22nd Battalion, Medical Staff Officer, who was thrown from his horse while on parade, (18) and much injured in the side and face. Major Miller, 7th Battalion, Orderly Officer, was also injured in the same manner.

#### *Provost and Camp Police.*

The appointment of a Provost Officer to take charge of the police has proved most satisfactory. To this, and the concentration of canteens under Staff supervision, much of the good order in Camp may be attributed.

*Bands.*

There were seven bands in Camp, and there are eleven in the District ; all of those in Camp appeared to be above the average. The supplying of Brigade Music as recommended by me last year, has had a most beneficial effect. I was fortunate in having Professor Clappé as Brigade Band Master, and the excellence of the music showed with what spirit the several bands entered into the new arrangement (19). As I wrote you on the 11th July, a uniform arrangement of the British Grenadiers should be added to the Brigade Music and supplied to the various bands before another camp (20) ; this would enable the bands to play for the march past of those Corps which claim the privilege of marching to that tune, and place the music on a satisfactory footing. I would also strongly recommend that a Sergeant be authorized for each band, and that some regulations be issued relating to the uniform and standing of Band Masters (21). I think bands should be in excess of the authorized Company strength, and draw pay on an acquittance roll by themselves. In rural Battalions they seldom know anything of the companies, and when a company goes into Camp very weak, bandmen are attached in order to bring it up to something like a respectable number, so as to enable the Captain to draw the usual allowances (22).

I am glad to be able to report the continued high state of efficiency of the band of the 7th "Fusiliers."

*Quarter-Masters and Brigade Sergeant-Major.*

In my letter of the 11th July, I explained the necessity of increasing the pay of Quarter-Masters ; their arduous and continuous duties call for action in this matter, as also increased allowances to the advance party on duty before and after camp. In that same letter I explained the desirability of having a Brigade Sergeant-Major attached to the Camp Staff (23), all of which, I trust, will be approved of.

*Buglers.*

Efficient buglers are rare indeed (24), at the last two camps I have required the whole of the buglers to parade twice daily at Brigade Headquarters, where they were placed under the most competent instructor and sent out for practice ; this has had a most beneficial result, but a Brigade Sergeant Bugler, with pay of rank should be authorized ; by carrying this out, the practice of putting a bugle on a man simply to enable him to draw pay would be frustrated.

*Rifle Associations.*

There are eleven in the District, which encourage considerable practice, but few however of the rank and file avail themselves of these competitions, and the question naturally arises, would it not be better to give a small annual sum to each company (25) to be competed for at Company Headquarters on such conditions as would induce the rank and file to practice with the rifle, and compete for the prizes.

*Drill Companies.*

Owing to the closing of Dufferin College, the Drill Company in Connection with that Institution has been disbanded and the arms, &c., returned into store, which leaves only three in the District, viz : London Collegiate Institute, St. Thomas and Mount Forest High Schools. The Collegiate Institute has had an Instructor from the Royal School of Gunnery for several weeks, the boys showing considerable proficiency, having paraded frequently with the 7th "Fusiliers" and formed part of the parade on the Queen's Birthday. The same Instructor, Sergt. Billman, has also been with the Mount Forest School for some weeks. The authorities of the St. Thomas High School do not appear to encourage Military Drill, consequently the Company is not in uniform, and had not been drilling at last Report.

*Military School.*

On the 3rd January last a Military School was opened in the Drill Shed at London, and continued for two months; although but a few weeks notice had been given, forty-nine applied for admission, thirty-three joined, of which twenty three received 2nd class certificates. At the close of the School, a Board was assembled for the examination of Officers applying for 1st class certificates. Twelve candidates presented themselves, nine certificates were granted, five of which were to those who had obtained 2nd class from the School.

The Staff was composed as follows;—

Lieut.-Col. Jackson, D.A.G., Commandant; Lieut.-Col. Hon. M. Aylmer, B.M., Adjutant; Sergt. Billman, Royal School of Gunnery, Instructor; Sergt. Conway, 7th "Fusiliers," Instructor.

The Adjutant and Instructors were painstaking and attentive, and the pupils, with few exceptions, made excellent progress (26). The good results were shown in Camp by the improvement in those Companies having graduates attached who acted as Instructors, and imparted valuable knowledge acquired while attending the School. If these schools were authorized regularly each alternate year with sufficient notice, many Officers would gladly attend and a great local want would be supplied, as but few are willing to go so far from home as to join the permanent school (27)

*Arms and Armories.*

Much improvement is noticed in the care of arms throughout the District; a few Captains however are negligent, from whom the allowances have been withheld in accordance with the orders; in some places continual inspections appear to be necessary to insure cleanliness. Many of the armories have been improved and in this respect satisfactory progress has been made. There are a number of rifles in each Corps out of repair. When the serviceable ones become less than forty-two per Company, I have had them sent to Toronto for repairs.

*Drill Sheds.*

Of the thirty-seven Drill Sheds in the District several have been repaired during the year. These wooden structures are now of that age that many will require repairing each year.

*Equipment.*

Considerable equipment has been issued during the past year to make up deficiencies, much of which, however, have been old, obsolete, and in some cases not suitable for use (28.) I regret that the issue of sticky knapsacks so frequently reported against, has been continued, their use having caused serious and irreparable damage to a great number of scarlet tunics (29.)

*Queen's Birthday.*

On the 24th of May the "Queen's Own Rifles," Lieut. Col. Otter, and the 10th "Royal Grenadiers," Lieut. Col. Grasett, of Toronto, visited London, and in conjunction with the London Field Battery, Major John Peters, and the 7th "Fusiliers," Lieut.-Col. John Walker, paraded on the Carling Farm, fired a *feu-de-joie*, marched past, and advanced in review order. The 10th also Trooped the Colours, after which the whole marched through the city.

The Brigade presented a smart and soldierly appearance and would have done credit to the military organization of any country, (30.) The movements on the field were witnessed by thousands of people, and the streets were thronged during the march.

Although the troops from Toronto had been on the cars all night, and had a heavy parade of about four hours, subsequently fraternizing with the people, their

entraining about 11 o'clock p. m., was done in the most orderly and expeditious manner, reflecting the highest credit upon both officers and men.

*Dominion Day.*

The Troops in camp were joined by the 7th "Fusiliers," and paraded in the morning for a General Field Day and Sham-fight, but owing to the down pour of rain the parade had to be dismissed after having marched past. This was a great disappointment to the thousands of people who had assembled from all parts of the District to witness the manoeuvres of their favourite Corps, in which much interest appears to be taken.

The rain having ceased, in the afternoon the whole Brigade marched through the city. The parade was the largest ever before witnessed here, and the appearance and steadiness of the men were highly creditable; every available space was occupied by spectators, and the streets so thronged the progress of the troops was much impeded. I consider parades of this kind are of much benefit in popularizing the force and showing the people the result of the Militia expenditure.

*Finally.*

On the whole, the operations of the year have been satisfactory, a good military spirit prevails among the Officers, and notwithstanding the high price and great demand for labour, the Non-commissioned Officers and men have shown patriotic zeal in turning out so promptly.

For their able assistance I am indebted to the Brigade Major, Lieut.-Col. Hon. M. Aylmer, Major Starr, Paymaster and Storekeeper, those officers who served temporarily on the Brigade Staff during the encampment, and to the Officers connected with the several corps.

I consider the duties of District Paymaster and Storekeeper in a large district like this quite too much for one Officer unless provided with a competent Storeman who is also able to keep the store books and fill in the returns (31).

I have the honor to be, Sir,  
Your most obedient servant,

W. H. JACKSON, Lieut.-Col.,  
Deputy Adjutant-General, Military District No. 1.

The Adjutant-General of Militia,  
Ottawa.

NOTES BY MAJOR-GENERAL COMMANDING.

(1) Established, 4,496; quota for drill, 3,000, leaving 1,496. Of the 4,496, 2,654 drilled, leaving 1,842 men undrilled in the year 1883.

(2) I would suggest that the thanks of Government be given in such cases of liberality on the part of municipal authorities.

(3) I have had, with regret, to report officially on the bad state of this regiment, and my reports have remained unattended to.

(4) I recommend the removal of Lieut.-Col. Cole from the command and a reduction of the regiment to one or two efficient troops. The state of this regiment I think very unsatisfactory.

(5) Very unsatisfactory.

(6) Lieut.-Col. Macdonald and his officers deserve much credit, as do the N. O. O. and men under his command.

(7) A good smart battery.

(8) I concur.

(9) A most satisfactory battalion.

(10) This shows that increase of pay is necessary.

(11) This shows the necessity of the Government giving a proper head dress.

(12) I regret to have had to order the suspension of Lieut.-Col. O'Malley until his conduct has been inquired into.

(13) A decided improvement, but much remains to be done.

(14) This displays the advantages which attend annual drill.

(15) A very good battalion.

- (16) I quite concur.  
 (17) Very satisfactory.  
 (18) These accidents display the necessity for schools of Equitation for mounted officers, and that the horses should be broken in.  
 (19) The music certainly did him credit.  
 (20) Recommended.  
 (21) I concur.  
 (22) This should not be permitted.  
 (23) Recommended.  
 (24) Buglers will, I hope, be taught at the new Schools for Infantry.  
 (25) Encouragement should certainly be given to the N. C. O. and men to practise with rifles.  
 (26) I am glad to receive so good a report.  
 (27) A permanent school should be at London, the headquarters of so large a District.  
 (28) Very unsatisfactory.  
 (29) This shows how things are ruined by being kept shut up in store, rather than [in use by careful men.  
 (30) Very satisfactory.  
 (31) I concur.

### MILITARY DISTRICT No. 2.

OLD FORT, TORONTO, 21st November, 1883.

SIR,—I have the honor to submit this, my Annual Report of the Militia in this District.

I herewith forward inspection return (tabular forms) of those Corps which have performed the Annual Drill.

Established strength of the active Militia in this District :—

		Officers.	N. C. O and Men.
Cavalry.....	9 Troops.....	39 .....	378
Field Artillery .....	3 Batteries.....	18 .....	237
Garrison Artillery.....	2 " .....	6 .....	84
Mountain Artillery.....	1 Half-battery.....	1 .....	21
Infantry and Rifles....	113 Companies.....	454 .....	4,738
	128	578	5,468
Authorized to Drill, 1883-84.....			4,390
Drilled " .....			3,997
			393

Ordered to perform Annual Drill 1883-84, but did not :—

	No.
Toronto Garrison Battery.....	45
St. Catharines " since amalgamated with the Welland Battery.....	45
No. 4 Company, 20th Battalion.....	45
" 6 " 44th " .....	45
	180

393 did not drill; 180 of these is accounted for as above; the balance 213, was caused by the small muster of some of the rural corps. (See tabular forms.)

## Corps that performed Annual Drill in Camp :—

	Officers.	N. C. O and Men.
2nd Regiment Cavalry.....	21	229
Toronto,	Field Batteries. {	{
Hamilton,		
and half the		
Welland Company.		
19th Battery.....	19	177
20th " .....	19	149
31st " .....	18	259
35th " .....	24	340
37th " .....	23	224
39th " .....	26	240
44th " .....	18	185
	177	1,933
Staff.....	9	7
	186	1,990
		186
		2,176

## At Local Headquarters.

	Officers.	N. C. O. and Men.
Governor General's Body Guard.....	8	82
Colling wood Artillery.....	3	30
Half-Battery, Sault Ste. Marie .....	1	21
2nd " Queens Own Rifles.".....	35	625
10th " Royal Grenadiers.".....	25	407
13th.....	21	249
38th D. R.....	24	255
Rifle Company, Sault St. Marie.....	1	34
	118	1,703
		118
		1,821
		2,176
		3,997

## Corps not authorized to Drill :—

12th York Rifles.....	32	336
34th Battalion.....	29	294
36th " .....	32	336
77th " .....	26	252
	119	1,218
		119
		1,337

In consequence of *inefficiency*, the 36th Battalion was *not required* to perform Annual Drill for the year 1883-84. This regiment is still in a most unsatisfactory condition for the want of proper Field Officers (1).

The Toronto Garrison Artillery although allowed to drill at Local Headquarters, has not as yet performed the Annual Drill. *This corps must become efficient or be removed from the active force*, (2.)

*Escorts and Guard of Honor furnished.*

The G. G. B. Guard furnished six Escorts; the 2nd Q. O. R. and 10th R. G. furnished six Guard of Honor. These duties were performed to the perfect satisfaction of those for whom they were ordered. Extract from communication received, for the information of Commanding Officers who furnished Escorts and Guard of Honor during the visit of His Excellency the Governor-General to Toronto, of his approbation of their soldier-like appearance and manner in which they performed their several duties.—“He trusts that the Militia of Toronto will maintain that high character for discipline and smartness which they have held in the past, and that the Governor-General will always take an interest in their future career.”

*Supplies.*

The contractors who provided the Camp supplies gave general satisfaction. Cost for ration per man, 20.9 cents.

*Health of Camp.*

Considering the extremely wet weather the health of the camp was very good. See Principal Medical Officer's Report attached (A.)

*Drill.*

Much time that would have been spent in drill was lost in consequence of the amount of rain and wet ground, it being almost impossible to find sufficient dry spots to drill upon. Time was also spent in moving tents from wet to dry spots. Taking into account the fact of having two Sundays (during the twelve days) allowed to be spent in camp and the large amount of time lost caused by wet weather, the progress in drill was very satisfactory, and the conduct of all ranks (with two exceptions) in the Hamilton Field Battery, already reported, was most satisfactory.

Infantry Battalions which performed Annual Drill in Camp, Niagara:—

19th Lincoln Battalion.—This Battalion of six Companies, only mustered in Camp, 196 of all ranks out of 278, its full strength. It is evident that the Officers have not taken that interest it would appear that they should have done (3). The conduct of the Regiment was good.

20th Lorne Rifles mustered 168 of all ranks in Camp (4) caused by No. 4 Company not attending and the other Companies being weak. A decided change for the better is expected before the next Annual Drill. Conduct of the corps was good.

31st Battalion, County of Grey, is composed of fine men and good Officers (5.) The corps is always ready and desirous of performing their duty. This corps lost a large portion of their band instruments by fire. Conduct good.

35th Simcoe Foresters. This a fine Battalion and well commanded and well officered (6.) Their muster was good. The conduct of all ranks satisfactory. This Battalion drilled in camp two years in succession.

37th Haldimand Rifles. This is a very fine Battalion being well commanded and well officered (7.) Lieut.-Col. Davis having given so much time and attention to the Active Militia has become a most efficient Commanding Officer,—no doubt is qualified to take any position in the force (8). All ranks are well drilled, and discipline well kept up, which causes all in connection with this Battalion to be most satisfactory.

39th Norfolk Battalion is a good Corps and well commanded and officered. They attended Camp two years in succession (9). The muster satisfactory and their conduct good. Norfolk being a most important position as regards defense, the Battalion should be kept efficient and ready for duty. This Battalion should be drilled annually (10.)

44th Welland Battalion was not very satisfactory, their muster being only 203 of all ranks (11). This, no doubt was caused by No. 6 Company, Clifton, not attending Camp. The Lieut.-Colonel not being able to attend with the Battalion, proved to be a great drawback the changing of the Commanders of three companies may have caused to a certain extent the small musters. This Battalion holds a very important position and should be kept efficient. I would recommend that No. 6 Company be required to drill with the Battalion, or its Head-quarters removed to where men can be obtained who can muster when required (12).

I am informed that having to remain in Camp to the third of July prevented many connected with farming from attending this year. The clover harvest in this district being ready on the latter part of June (13).

#### *Target Practice.*

I would recommend that the suggestions contained in the Musketry Instructor's report (attached B.) be acted upon. I would again recommend that the allowance of ball ammunition be expended at company Head quarters (14). The Militia Department giving small sums to be divided into 1, 2 and 3 class company prizes (*officers not to compete*).—The amount received by officers taking prizes at the late Ontario Rifle Association was over \$550. As officers are required to state the distance before giving the order to fire (at yards ready) I would recommend that prizes be given to officers for judging distance (16).

#### *Armourer.*

During the late Niagara camp the District Armourer repaired 114 rifles and 32 carbines, total, 146, thereby saving the expense of transport of these arms to Toronto (17).

#### *Guard Mounting*

Was taken advantage of for a most careful inspection of the arms, accoutrements and clothing and the duties of all were carefully pointed out.

#### *Time for Guard Mounting.*

This year the Camp guards were mounted at 10 a.m.; last year the duties commenced at *Retreat*, as that time avoids the necessity of more than the guards of one day being absent from parade. It no doubt is the most advantageous time for the militia who are together for so few days (18).

#### *Music.*

The music was very good, there being five brass bands present. These bands produced extremely good music.

#### *Inspection.*

On the 9th day the Major-General Commanding inspected the Camp and issued the following orders:—*Vide G. O.,'s Report page*

#### *At Local Head quarters.*

The Governor General's Body Guard was inspected by Lieut.-Col. Milson at the new garrison in this city on the 17th June for particulars see tabular form. This is a smart and well mounted corps, being well officered and well drilled (19).

The "Queen's Own Rifles," the 10th Royal Grenadiers and 13th Battalions, after inspection were complimented by the Major-General Commanding. These corps are well officered, well equipped and well drilled.

The 38th Battalion D.R., having lately been made a City corps, performed their Annual Drill at the City of Brantford and were inspected by me on the 8th day of November. (For particulars see tabular form.) (For soldierly appearance, steadiness in the ranks and performance of drill, places this corps among the best Battallions in the Dirtrict (20).

#### *Examination of Officers.*

An examination of officers was held at the Old Fort, Toronto, on the 11th and 12th September upon which occasion twenty "Second" and five "First" class certificates were granted.

#### *Enrollment Active Force.*

I would recommend that *upon enrollment* each recruit should have read to him sections 9, 43, 64, 67, 80, 81, 82, 83, 84, of the Militia Act (21).

#### *Pay.*

As every Officer and man on the pay-sheets was required to answer to his name in the presence of myself or Lieut.-Col. Milson, and as every horse for which pay was asked paraded for our inspection, I can vouch for the correctness of the amount paid (22).

#### *Accoutrements.*

Since the Major's General Commanding-first inspection all deficiencies in accoutrements have been made good in this District, with the exception of those which through wear will soon be required to be exchanged for others—I hope of a later and improved pattern (23).

#### *Algoma District.*

There not being a Military Organization in this District west of Sault St. Marie, I would recommend that an active force Rifle Company be formed at Port Arthur, where there is plenty material to select men from (24). Should aid to civil power be required from the District, it could not be supplied for several days. I would also recommend that the Reserve Militia in this District be organized into at least two Battalions, the Manitoulin Island to provide one of those Battalions (25).

#### *Forts.*

I would also draw attention to the decaying state of old forts at Toronto and Niagara, and would recommend that the centre tower in the Messessagua Fort be at least preserved as a land mark (26.) standing as it does in so conspicuous a position at the entrance of the Niagara River.

#### *Divine Service.*

The two Sundays in camp the church parades wers as follows: The Roman Catholics were marched to their church; the remainder formed in front of the Brigade Office and joined in the Church of England service, lead by the Rev. Stewart Jones, (of that church) who has accompanied the 39th Battalion to Camp for several years as their Chaplain. Mr. Jones having obtained Military School certificates, and he having served in the force until allowed to retire with the rank of Major, makes his ministrations most acceptable to his brother Militiamen (27).

#### *Young Men's Christian Association.*

The Young Men's Christian Association tent from Toronto was erected within our lines. The religious services held in the Tent were most acceptable and no

doubt had a good effect upon the conduct of the Camp (28). The tent was provided with writing material, daily papers, &c., free to the men of the Camp, which was a source of comfort to all ranks.

This Association should have a welcome to all Military Camps, their property protected and the feelings of those joining in their services respected (29).

*Camp Staff.*

To the following officers who formed the Brigade Staff: Lieut.-Col. Milson, Sergeant-Major De la Hooke, Lieut.-Col. Alger, Major Dunn, Capt. White, Capt. McLaren, Capt. Barker, Lieut. Howard, and particularly to Major the Rev. Sewart Jones, of the Church of England, I desire to tender my best thanks for their valuable and ready assistance in carrying out the work of the Camp.

I have the honor to be, Sir,

Your most obedient servant,

ROBERT B. DENISON, Lieut.-Colonel,  
Deputy Adjutant-General, Military District No. 2.

The Adjutant-General Militia, Ottawa.

NOTES BY MAJOR-GENERAL COMMANDING.

- (1) I hope that another year may change this state of things.
- (2) I concur.
- (3) I am sorry to receive this report.
- (4) A nice looking little Corps.
- (5) A fine Battalion in creditable order.
- (6) A fine Battalion well turned out and looked well, and an excellent Commanding Officer, Lieut.-Colonel O'Brien.
- (7) I noticed this Battalion as very good.
- (8) And concur in this opinion of Lt.-Col. Davies.
- (9) A good Battalion.
- (10) I concur.
- (11) I regret to read this report.
- (12) I concur.
- (13) The Camp should be in June, I think.
- (14) I concur.
- (15) Officers should *not* compete.
- (16) I concur.
- (17) Satisfactory.
- (18) I concur.
- (19) Satisfactory.
- (20) Very satisfactory.
- (21) I concur; and that these Sections be also read to each man on arrival in Camp.
- (22) Satisfactory.
- (23) I concur.
- (24) Without increased estimates no increase to the Force can be desirable in my opinion.
- (25) If there be any Reserve Militia I should like to see them, to judge of their efficiency.
- (26) I concur.
- (27) Very satisfactory.
- (28) Very satisfactory.
- (29) I would suggest a contribution from Government to these excellent institutions.

(A.)

CAMP NIAGARA, July 3rd, 1883.

SIR,—I have the honor to report that the health of the men in camp at Niagara for the first few days was satisfactory, but in consequence of the subsequent storms and heavy rains there was an increase of sickness during that period, which declined on the appearance of fine weather.

The diseases most prevalent were ophthalmia, diarrhoea, constipation, rheumatism, bilious attacks, intermittent fever, sore throat, bronchitis, colds, dysentery, hepatic and gastric derangements.

Many of the men who came from malarial districts, and who had been subject previously to ague and intermittent fever, from atmospheric influences, change of diet, and the exposure incident to Camp life, were more liable to be affected than those coming from healthier localities.

The accidents that occurred were few and of a trivial character.

With regard to the medicines most suitable it would be difficult to recommend or arrange them to give entire satisfaction, the generality of medical men, at least some of them being prejudiced in favor of some particular remedies in preference to others.

As instructed, I would suggest that the following medicines be added to the medicine chest that was sent to the Camp, a list of which is hereby appended.

I have the honor to be, Sir,

Your obedient servant,

J. ACLAND DE LA HOOKE, P.M.O.,  
Surgeon-Major, 2nd Cavalry.

To the Deputy Adjutant-General,  
Military District No. 2.

#### *List of additional Medicines for Medicine Chest.*

Tinct. Ferri Chlorid; Tinct, Opii; Tinct Opii Camph; Tinct Aconst; Rad; Spt. Aether Nitros.; Spt. Aether Suplh.; Co. Plumb Acetas.; Acid Tannic.; Acid Carbol.: Glycerine Pulv. Opii.; Zinci Sulph; Bismuth Subnitras; Pil Opii.  $\frac{1}{2}$  and 1 grain pills; Spt. Terebinth; Diarrhoea Mixture, Chlorodyne, Fullers, Earth.

#### *Diseases.*

Ophthalmia and sore eyes.....	14
Diarrhoea .....	19
Constipation .....	31
Rheumatism .....	5
Intermittent and bilious fever .....	27
Sore throat.....	8
Tonselletas.....	2
Epilepsy.....	1
Convulsions .....	1
Delirium tremens.....	1
Nervous excitement.....	1
Bronchitis .....	4
Hemicrania .....	1
Hæmorrhoids .....	2
Pleuritis .....	1
Fracture of the nose.....	1
Barbers' itch.....	2
Biliousness.....	3
Sprained ankle.....	3
Cough .....	1
Burn .....	1
Swollen knee.....	1
Gastric derangement.....	5
Contusion.....	1

Sluggish liver .....	1
Dysentery. ....	1
Cramps.....	1
Sciatica and neuralgia.....	3
Sore feet.....	3
Cold .....	5
Kidney affection.....	1
Dyspepsia .....	1
Injury to limb.....	1
Swelled arm .....	1
Inflamed wrist .....	1
Sore mouth.....	3
Congestion of brain .....	1
Enlarged knee.....	1
Ulcer .....	1
Lumbago.....	1
Stiff neck.....	2
Hepatic derangement.....	1

Total..... 165

J. ACLAND DE LA HOOKE, P.M.O.,  
Surgeon-Major, 2nd Cavalry.

(B.)

CAMP NIAGARA, 3rd July, 1883.

SIR,—As Musketry Instructor to the Brigade assembled here under your command, I beg to report that I have carried out the Target Practice according to G. O., No. 9 of May 10th, 1883, without accident.

I would recommend that each man should fire five rounds at 200 yards, all men failing to make five points be not permitted to fire at a greater distance, but again exercised at same range, as it is a waste of time and ammunition to pass men to a long range while failing to score at a short one,

Herewith you will find enclosed my return in tabulated form, also the Target Practice returns as furnished me by Officers commanding Companies.

I have the honor to be

Your Obedient Servant,

JOSEPH WHITE,

Capt. and Adjt. 34th Batt., B. M. I.

To Lieut.-Col. DENISON, D.A.G.,  
Commanding Camp.

## Established Strength of Active Militia in this District.

"19th" Battalion.						"44th" Battalion.					
No. of Com- pany.	No. of 1st Class.	No. of 2nd Class.	No. of 3rd Class.	Company Fig. of Merit.	Batt. Fig. of Merit.	No. of Com- pany.	No. of 1st Class.	No. of 2nd Class.	No. of 3rd Class.	Company Fig. of Merit.	Batt. Fig. of Merit.
1	1	2	18	17·91	19·34	1	0	3	11	23·21	15·08
2	0	8	25	23·18		2	0	0	6	8·16	
3	3	2	15	19·90		3	0	4	9	18·85	
4	2	1	9	22·91		4	0	0	13	10·53	
5	0	0	16	13·00		5	0	2	14	15·93	
6	2	5	13	26·90		7	0	0	19	19·21	
Total...	8	18	96			8	0	0	16	11·12	
"20th" Battalion.						Total...	0	9	87		
1	8	7	9	35·66	26·99	"35th" Battalion.					
2	4	3	18	28·34		1	1	2	36	12·23	16·19
3	5	4	13	26·90		2	1	1	10	16·00	
5	1	3	16	22·15		3	3	5	17	20·20	
6	1	2	21	19·70		4	4	3	26	18·70	
7	3	0	26	13·93		5	1	2	35	11·94	
Total...	22	19	103			6	2	3	25	17·53	
"31st" Battalion.						7	1	5	30	13·19	
1	0	1	25	10·00	17·23	8	1	5	24	20·20	
3	3	2	32	16·38		9	0	2	24	15·42	
4	1	4	19	20·86		10	0	0	36	12·22	
5	1	6	27	16·75		Total...	14	28	263		
6	2	10	27	22·10		"39th" Battalion.					
7	0	1	25	15·69		1	1	1	26	13·57	14·09
Total...	7	24	155			2	0	7	15	22·81	
"37th" Battalion.						3	1	0	10	19·00	
1	3	7	16	23·33	21·33	4	0	1	26	11·63	
3	2	5	22	20·60		5	0	0	16	8·56	
4	4	3	15	24·59		6	0	1	27	11·35	
5	3	2	16	21·63		7	0	1	9	16·00	
6	1	3	12	24·06		8	0	0	16	12·06	
7	2	4	19	20·80		Total...	2	11	144		
8	0	1	15	12·81							
Total...	15	25	115								

## MILITARY DISTRICT NO. 3.

DEPUTY ADJUTANT-GENERAL'S OFFICE,

KINGSTON, 15th November, 1883.

SIR,—I have the honor to submit for the information of the Major-General Commanding, this, my Annual Report on the state of the Militia in Military District No. 3; the tabular inspection return, showing the detail of annual drill performed by each Corps in the District, &c.

The following is the established strength of the Active Militia, by Arms, viz:—

	Strength.
Cavalry (7 troops).....	329
Two Field Batteries.....	170
Two Garrison Batteries.....	90
Infantry and Rifles (60 companies).....	2,772
Total .....	<u>3,361 (1)</u>

The number of Militiamen authorized for annual drill, were, quota 2,518;

In Camp.....	1,396
At Headquarters.....	572
Total .....	<u>1,968</u>

Corps which performed drill in Camp:—

3rd Provisional Regiment of Cavalry.  
 Kingston Field Battery.  
 Durham Field Battery.  
 40th Battalion.  
 46th do  
 47th do  
 49th do  
 57th do

Corps authorized to perform drill at their respective Headquarters:—

14th Battalion  
 15th do

Corps relieved from Annual Drill:—

4th Provisional Regiment of Cavalry.  
 Cobourg Garrison Artillery.  
 Port Hope do  
 16th Battalion.  
 45th do

*14th Battalion.*

I inspected this fine Battalion on the 25th of July, which paraded its full strength (2) with band, bugle band and pioneers, their appearance for parade being clean and soldier-like. Battalion drill excellent; also the manual and firing exercises and skirmishing, and nearly every Officer in the regiment holds either a first or second-class certificate from the Royal School of Gunnery. I consider the 14th worthy to stand in the front rank of efficient Corps. The equipment of this Corps is in perfect order, reflecting the greatest credit on Quarter-Master Spriggs.

Again this Corps received permission to attend the celebration of Dominion Day (Monday, 2nd July) at Camp at Brockville. The troops in that Camp parading for a Review, under Col. Maunsell, D.A.G., commanding the Camp—on this occasion

the Battalion mustering 312 of all ranks—the men parading in marching order. On the conclusion of the Field-day, Col. Maunsell, D.A.G., complimented Col. Kerr on the appearance and efficiency of the 14th, saying that they were one of the representative Corps of Ontario.

On the 14th September the Battalion furnished a Guard of Honor, consisting of three officers, Capt. Galloway, Lieuts. Murray and Shannon, seventy-five men and Band—on the occasion of the visit of the Governor General and H. R. Highness and Prince George, to dinner at the Royal Military College. Their Excellencies and Prince George of Wales inspected the Guard, and expressed their pleasure at the neat and soldier-like appearance of the men, and before leaving the College the Princess again asked to see Capt. Galloway in command of the Guard, and desired him to convey to the men her gratitude for the honor conferred; and also said that H. R. H. Prince George, would inform his mother of the honor the Regiment bearing her name had paid to them on this occasion.

The expenses of this Guard were borne by officers (3.)

#### *15th Battalion.*

This Battalion was inspected by me at Belleville on the 15th June for the Annual Drill of 1882-83. I made a close inspection of the Arms, Accoutrements and Clothing, and found them clean and well put on. The drill, consisting of Battalion movements and some skirmishing—all very steady and fairly done. Capts. Lazier and Walmsley were called out to drill their Companies at Company drill, all of which was done to my satisfaction, showing clearly a great improvement had taken place. Most of the Officers had just joined, and some had promised to attend the Military School. The regiment mustered its full strength.

On the 26th of October I inspected the 15th for the annual drill of 1883-84 (4). The regiment again turned out very clean and mustered its full strength. The drill was very well done, consisting of deployments, forming line to the right on the right Company, advancing in echelon of Companies, and forming Company squares, &c., and skirmishing. I was much pleased with this Battalion, and can report a great improvement since my inspection in June last (5); four officers have since taken certificates at the Royal School of Gunnery.

#### *Rifle Associations.*

There are nine Rifle Associations in the District, all in good working order (6). The returns are forwarded with this report.

#### *Brigade Camps.*

On the 11th September the Brigade Camp for this District was again formed near the Town of Cobourg, composed of the Corps as named above, the Town Council placing a large common at my disposal (7) free of charge, besides sinking wells, building all necessary latrines, supply store, as also the rifle range. The Mayor (Lieut.-Col. Graveley) was ever ready to assist in making the Camp a success, and I have every reason to be obliged to him.

#### *The Weakness of all Corps.*

Owing to the very late harvest (8) all the Corps turned out weak, particularly so the Kingston Field Battery and 46th Battalion.

#### *Drill.*

As about 7-10ths of the men were recruits (9) the first week was devoted to Squad and Company drill, and I can testify to the full time of drill being put in daily by Officers and men.

*Cavalry.*

The 3rd Regiment of Cavalry under command of Lieut.-Col. D'Arcy Boulton were weak in numbers, but were well mounted, especially (10) the Peterboro' Troop under Lieut.-Col. Rogers.

*Field Batteries.*

The Durham Field Battery have improved since last year's Camp (17) and came into camp well horsed. *Vide* Deputy Inspector of Artillery's report.

I was disappointed with the turn-out of the Kingston Field Battery; they came into Camp very weak in number, and poorly horsed; the present Captain only assuming command a few days before going to Camp, and was not prepared to assume such responsibility on so short a notice, which may account for the poor turn-out.

This Battery should be second to none, owing to the advantage of having the Royal School of Gunnery alongside of them (12).

*Vide* Inspector of Artillery's Report.

*Battalions.*

The five Battalions, viz., 40th, 46th, 47th, 49th, 57th, were all very good as far as they mustered—the 48th having much improved since last year. The 57th again this year carried off the palm, being the best equipped and all round Corps on the field (13).

*Inspection of Arms and Clothing.*

I inspected the arms and clothing of each Corps while in Camp. The clothing was in good order. The arms were clean, but many require repairing (14).

*Health of the Camp.*

The health of the Troops was good. *Vide* Principal Medical Officer's Report attached.

*Rations.*

The rations supplied by the different contractors were excellent in quality, and ample, the daily cost per man being 19½ cents.

*Conduct in Camp.*

The general conduct of the Troops while in Camp was good.

*Divine Service.*

Divine Service was held on the Sunday.

*Y. M. C. A.*

The presence of the Young Men's Christian Association (15) in Camp was thoroughly appreciated, and Mr. Bickle has again my thanks for all the trouble and expense incurred for the welfare of Troops by this Association.

*General Luard's Inspection.*

On the 20th September, Major-General Luard inspected the Force on parade.

The General was received by the Troops in line, and after the Brigade had marched past, he assumed the command, and on his departure issued the following order:—

*Vide* G. O.'s Report.

*Fine Weather.*

The weather during the whole Camp time was very fine, although the nights were decidedly chilly, and again I beg recommend that the month of June be selected (16) as the most convenient for the men and safest as regards the weather.

*Bugle Instructor.*

I strongly recommend a Bugler Instructor (17) be added to the list of Brigade N. C. O. Staff.

*N. C. Officers as Instructors.*

Good N. C. Officers as Drill Instructors are greatly needed in each Corps, and I hope these new Infantry Schools will supply the demand.

*Muster Parade.*

Muster Parade was carried out by the District Paymaster according to orders.

*Bands.*

There were five excellent Battallion Bands in Camp, and were brigaded when required.

*Target Practice.*

I would recommend that half the allowance of ball per man be fired in Camp, thereby giving the Musketry Instructor more time to devote to each man.

## VICE-REGAL PARTY VISIT.

*Camp Cobourg.*

On the 14th September, or three days after the assembling of the Troops in Camp, their Excellencies The Governor-General and H. R. H. Princess Louise and Prince George of Wales visited the Camp. On alighting from the train a Royal Salute of twenty-one guns was fired by the Batteries, and the Cavalry escort was furnished by the Peterboro' Troop, 3rd Regiment of Cavalry under command of Lieut. Col. Rogers.

On arriving at the Camp their Excellencies were received by the whole Brigade in line, and before their departure from the Camp all the Officers had honor of being presented to their Excellencies and H. R. H. Prince George.

The Troops, although only three days in Camp, turned out very clean and perfectly steady in the ranks, and throughout the remaining days I can conscientiously report that all ranks worked with the determination to learn and to do their duty to the best of their ability, and I must thank the Officers commanding Corps for their hearty co-operation and support in the performance of my duties.

I have the honor to be, Sir,

Your most obedient servant,

H. V. VILLIERS, Lieut.-Col.,

Deputy Adjutant General, Military District No. 3.

The Adjutant-General,  
Headquarters, Ottawa.

## NOTES BY MAJOR GENERAL COMMANDING.

(1) Of the 3,361 establishment, the quota for drill were 2,518 men, but only 1,968 drilled; so of the total of 3,361 establishment, 1,393 men did no drill in 1883-84.

(2) I have myself inspected this Battalion more than once and am glad to hear that it keeps up its excellent character.

(3) As there is drill money to spare in this District I would beg to suggest that these expenses should be paid.

(4) It is to be remarked that *two* years' drill has been done within about four months, thus doubling the allowance. In future I hope the drill may be annual.

(5) I am glad to learn that the 15th Battalion has made such strides towards efficiency.

(6) Satisfactory.

(7) A good and conveniently placed ground, and the Corporation deserve thanks from Government.

(8) The year was exceptional as to climate.

(9) A sad absence of the older men.

(10) I observed on the creditable appearance of this Troop.

(11) I concur.

(12) I quite concur, and much regretted to see a Battery so slovenly and dirty.

(13) I concur.

(14) I wish the equipments were complete.

(15) These establishments deserve our hearty thanks.

(16) I quite concur.

(17) Will be provided, for I hope, by the new Infantry Schools.

(18) I concur in this.

### (A.)

CAMP COBURG, September, 1883.

SIR,—I have the honor, in accordance with your instructions, to submit the following Report, as principal Medical Officer of the Camp lately held at Coburg, beginning on the 11th of September and ending on the 22nd inclusive:—

The weather upon the whole was very favourable for the season of the year, there being during the whole time only a couple of wet nights. The days were generally warm and pleasant, but the evenings became cold and damp, and the men in several cases complained of lying on the *cold ground* and asked for straw, to place between their blankets and the earth. I advised their request to be granted.

In the early part of the Camp the men may be said to have been healthy generally. Later there were a good many cases of diarrhoea, aggravated probably by the coldness of the nights and dampness of the ground.

One case of rheumatism occurred and was sent home; and one case of bilious fever near the end of the Camp. Three cases of injuries occurred, and Boards were ordered to examine into their cases and report.

These reports were handed in at the Camp.

The supply of medicines were, with one or two exceptions, sufficient, and the deficiencies were ordered from one of the drug stores in the town and the account certified.

There was some difficulty at first in distributing the medicines, but after having a tent specially for the medicine chest, and an Orderly Sergeant to attend to the distribution of the medicines as the requisitions came in from the Surgeons of Corps, everything went on very well.

It would be advisable in future to have *several copies of the list of medicines and appliances* in the chest printed and placed in the chest for *distribution* among the Medical Officers, so that they might know what selection to make when sending in their requisitions to the Medical Tent.

It would be very advisable, I think, that Camps should be held in *June* (18) when the weather is warm. It is the least busy season.

The men run much less risk camping out at that time of the year. They turn out more readily and willingly and it is safe to conclude that a better class of men may be obtained and at much less expense in every way to the country.

Last year and also this year we have had exceptionally fine weather for the season of the year, and the Camp may be said to have been fairly healthy.

Still, by comparing the number of cases reported in June, 1875, in which I had the honor to be P. M. O., with the one lately closed, it will be seen that nearly three times as many men were reported off duty in the latter: the numbers being in the

former 68, while in the one just closed they were 164. I think I am safe in concluding that the season had the principal effect in causing the difference, as the ground, water supply, provisions and hygeinic arrangements were in each case carefully attended to.

In conclusion, I may say that the rations were *ample* and gave *every satisfaction* to the men.

I have the honor to be,  
Your most obedient sarvant,

A. S. BRISTOL, P.M.O., Surgeon-Major.

To Lieut.-Col. Villiers, D. A. G.,  
Military District No. 3.

### MILITARY DISTRICT No. 4.

HEADQUARTERS. MILITARY DISTRICT No. 4,  
OTTAWA, 1st December, 1883.

SIR,—Complying with instructions, I have now the honor to submit this my Annual Report of the state of the Militia in the District, for the year 1883-84.

1. The established strength of Corps in the District by arms is as under.

	Officers.	N.-C. Officers and Men.
Cavalry Troops (two).....	6 ...	70
Field Artillery, Batteries (two).....	12 ...	150
Garrison Artillery Battery (one).....	3 ...	42
Infantry and Rifle Battalion, (seven Battalions) (44 Companies).....	188 ...	1,986
Total 1.....	<u>209</u>	<u>2,248</u>

2. Number of Active Militia authorized for drill:—

In Camp.....	1,330
At Headquarters.....	310
Total.....	<u>1,640</u>

3. The Corps which performed drill in Camp were:—

#### *Cavalry.*

Staff.....	9 ...	7
Princess Louise Dragoon Guards (Lieut.-Gour- deau).....	2 ...	27
Prescott Troop (Capt. Raney).....	1 ...	35

#### *Artillery.*

Ottawa Field Battery (Major Stewart).....	5 ...	61
Gananoque Field Battery (Major McKenzie).....	5 ...	69

#### *Infantry and Rifles.*

41st Battalion, Brockville Rifles, 3 Companies, Major Jackson .....	11 ...	77
42nd Battalion, Brockville Infantry, 6 Companies, Lt.-Col. Buell .....	21 ...	229

43rd Battalion, Ottawa and Carleton Rifles, 5 Companies, Lt.-Col. White.....	18	...	183
56th Battalion, "Lisgar Rifles," 7 Companies, Lt.-Col. Campbell.....	22	...	192
59th Battalion "Stormont Infantry," 6 Companies, Lt.-Col. Bergin.....	22	...	236
Total drilled in Camp.....	116		1,116

#### 4. Corps performing drill at Headquarters:—

1st Battalion, "Governor General's Foot Guards," 6 Companies, Lt.-Col. Ross.....	23	...	287
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5. No. 2 Company, 43rd Battalion, although called out for Annual Drill in Camp, failed to put in an appearance, in consequence of the inability of the Capt. to muster his Company. He has since been relieved of his command, and the Company Headquarters removed to Mount Sherwood.

No. 4 Company, 59th Battalion, did not go into Camp as the Headquarters of the Company had just been changed from Lancaster to Township of Finch, and was not re-organized.

The 18th Battalion was relieved from drill in consequence of the sudden resignations of Capts. of Nos. 2 and 4 Companies, and No. 6 Company being entirely composed of mill-hands, employed by Messrs. Hamilton Bros., Hawkesbury, could not be spared at such a busy season. If the request of the Officer Commanding to be allowed to recruit in the County of Glengarry were complied with, this Battalion could soon be brought into an efficient state.

Nos. 1, 2 and 4 Companies of the 41st Battalion were with the Prescott Garrison Battery of Artillery, the only other Corps not called out for drill in Camp, as it was thought that those already mentioned as called out for Annual Drill would, with those drilled at Headquarters, make up the number allowed in General Orders for drill, namely, 1,640, of which number 1,542 have performed drill, or ninety-eight below the quota.

#### *Brockville Brigade Camp.*

The Camp for the annual training of the Militia of the District was held near Brockville, situate on the same ground as used last year, and already described in previous report. It commenced on the 25th June and terminated on July 6th, the Staff was composed as follows:

Lieut.-Col. Maunsell, D. A. G.....	Commanding
Lieut.-Col. Bacon .....	Brigade Major.
Captain Toller, G. G. F. G.....	Asst. Major.
Lieut.-Col. Macdonald, Militia Department.....	Supply Officer.
Lieut.-Col. Cole, 41st Battalion.....	Camp Quarter-master.
Lieut.-Col. Butterfield, 18th Battalion.....	Provost Officer.
Surgeon Merriek, Gananoque Field Battery.....	Principal Medical Officer.
Major Macpherson, G. G. F. G .....	Musketry Instructor.
Lieut. Bate, G. G. F. G.....	Orderly Officer.

The short time in Camp was made the most of, and marked improvement was observable in all Corps, as the following extract from orders will show:

#### BROCKVILLE CAMP, 3rd July, 1883.

##### After Order.

The commandant has much pleasure in promulgating the following order from the Major-General Commanding.—*Vide* G. O. Report, page 200.

The following is an extract from Lieut.-Col. Maunsell's final order before breaking up of Camp:—

CAMP BROCKVILLE, July 5th, 1883.

## Brigade Orders.

No. 3.

"In publishing the orders for the return to their local Headquarters of the different Corps assembled for annual training in Brockville Camp, the Commandant has another opportunity afforded him, on these beautifully situated grounds, of expressing his sincere thanks to all Officers, Non-commissioned officers and men for their strict attention to the performance of military duty, which has resulted in the issue of a highly complimentary order by the Major-General in Command (already published in Brigade Orders) on the completion of his inspection.

"The degree of proficiency displayed by the Force could only be obtained as Major-General Luard observes, after much trouble on the part of all, and in stating that the many recruits in the ranks have shown remarkable aptitude in the acquisition of Military knowledge, the Commandant is but using words often employed in speaking of the training of their older comrades in the Active Force.

"From his experience in the command of three annual Brigade Camps in the District, Lieut. Col. Maunsell is of opinion that there is marked improvement in the regimental systems of the different Corps composing the Brigade.

"The almost total absence of misconduct and presence of cheerful obedience to orders, are amongst the most pleasing features of the Camp.

"The Corporation of Brockville and the citizens generally have left nothing undone to insure the comfort and convenience of the troops in Camp.

"The Agents of the Young Men's Christian Association have been as usual untiring in their efforts.

"The rations have been of good quality and the health of the troops is excellent.

"Target practice has been carried on under the supervision of the Musketry Instructor.

"In conclusion, in view of the satisfactory state of efficiency secured, with respect to the drill and practice, as well as the discipline of the Force, Lieut.-Col. Maunsell offers in the most emphatic manner his thanks to the Brigade Major and the Staff in general as well as to Officers in command of Corps, for their cordial support and co-operation in the performance of his duties as Brigadier.

By order

"THOMAS BACON,

"Lieut.-Col., Brigade Major."

The 42nd Battalion, Lieut.-Col. Buell, has now drilled in Camp for three successive years, and this year showed more than ever, the advantage of annual over biennial drill, as although there was one Company (No. 5—Capt. Caldwell) entirely new from the Captain to the private soldiers, the whole Battalion was conspicuous for steadiness in its movements on parade, and its thorough discipline in Camp 3.

The 43rd Battalion, Lt.-Col. White commanding, made good progress in Camp, and was much benefited by the presence of No. 1. Company (under Lieut. Parker), belonging to the City of Ottawa, which, by its example of smartness and cleanliness, did much to cause emulation in the Companies hailing from the country. No. 6 Company, Capt. Chamberlain, deserves special mention; it came into Camp in full strength—three officers and forty-two Non-commissioned Officers and men, and at target practice every man fired through the course, and to its great credit obtained the highest Company figure of merit in the Battalion 4.

The 56th Battalion, Lieut.-Col. Campbell, and 59th, under Major Breden, largely composed of recruits, worked hard and learned the duties of soldiers in Camp as far as could be expected of them in ten days 5.

There was a marked improvement in the Prescott Troop (Captain Rancey), in appearance, induced I believe by the presence of the Princess Louise

Dragoon Guards (Lieut. Gourdeau); the drill of the country Troop, I am bound to say, was at least equal to the Troop from the city.

The Governor-General's Foot Guards performed the Annual Drill at Battalion Headquarters, and were inspected by me on Cartier Square on the 3rd of August. There were present on parade:—14 Officers and 218 Non-Commissioned Officers and men. The Battalion was drawn up in line and received me with a general salute, after inspecting the ranks, quarter column was formed and the Corps marched past in good style: the manual and firing exercises were then gone through, the former of which was particularly well done, the latter fairly, under the command of Major Tilton, after which in the absence of Lieut.-Col. Ross, Major Macpherson put the Corps through a great many movements which were on the whole very well done, and I have very great pleasure in reporting that the Corps turned out remarkably well, with their arms and accoutrements beautifully clean, and the latter well put on. After the inspection I mustered the Companies and called the rolls in compliance with Orders, and found the pay-sheets all correct.

Being only in Acting Command of the District, I feel diffident in making any further remarks or suggestions.

I have the honor to be, Sir,  
Your obedient servant,

THOMAS BACON, Lieut.-Colonel,  
Acting Deputy Adjutant-General,  
Military District No. 4.

To the Adjutant-General, etc.,  
Ottawa.

#### NOTES BY THE MAJOR-GENERAL COMMANDING.

- (1.) Establishment, 2,248; authorized to drill, 1,640; drilled, 1,542; leaving 706 undrilled.
- (2.) I believe the officer commanding the 18th Battalion to be competent to command were the men forthcoming.
- (3.) The state of the 42nd is creditable to all, and displays fully the advantages attending drill each year. I noticed the steadiness and good turn-out of this Battalion.
- (4.) I noticed also the 43rd, and especially the Ottawa Company; also Captain Chamberlin's Company. Lieut. Chamberlin is a well-known good rifle shot at Wimbledon and elsewhere.
- (5.) I am glad to receive so good a report of these young Battalions.

#### MILITARY DISTRICT NO. 5.

HEADQUARTERS, MONTREAL, 20th November, 1883.

SIR,—I have the honor to submit my Annual Report on the state of the Militia in Military District No. 5, for the information of the Major-General Commanding.

#### *Establishment.*

	Strength.	No. of Existing Corps.
Cavalry.....	352	9 Troops.
Field Artillery.....	240	3 Batteries.
Garrison Artillery.....	323	7 Batteries.
Engineers.....	87	1 Company.
Infantry.....	4109	89 Companies.
Independent Company.....	45	1 Company.

5,156

## Active Militia authorized to drill in Military District No. 5 :—

In Camp.....	1,981
At Headquarters.....	1,709
	<u>3,690</u>

## Corps which performed drill in Camp.—

6th Provisional Regiment Cavalry.....	117
Montreal Field Battery.....	72
Shefford Field Battery.....	60
Richmond Field Battery.....	42
11th Battalion.....	217
50th Battalion.....	115
51st Battalion.....	203
52nd Battalion.....	115
58th Battalion.....	383
60th Battalion.....	131
79th Battalion.....	219
	<u>1,674</u>

## Corps which performed drill at Headquarters :—

Montreal Garrison Artillery.....	227
St. Johns Garrison Artillery.....	36
Montreal Engineers.....	50
1st Prince Wales Rifles.....	224
3rd Victoria Rifles of Canada.....	252
5th Royal Scots of Canada.....	205
6th Fusiliers.....	301
53rd Battalion.....	154
	<u>1,449</u>

Corps which performed drill at Head-Quarters.....	1,449
“ “ “ Camp.....	1,674

Total.....	3,123
Officers.....	298

Total drilled.....	<u>3,421</u>
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## Corps which did not perform Annual drill, though authorized.—

Independent Company (St. George's and St. Sebastian).

## Corps which were not authorized :—

5th Cavalry.  
54th Battalion.

*Cavalry.*

The 6th Cavalry performed drill in Camp—St. John, mustering nearly full strength. The men are a fine specimen of the agricultural class and were very fairly mounted. The arrangements made for tethering the horses this year was all that could be desired and in consequence only one horse was injured and that very slightly so (1). The appearance of this Regiment would be much improved if the Commanding and other Officers would show more regard for uniformity in dress (2). Sergeant Baxter was sent from “A” Battery to assist in the instruction, and rendered good service.

*Field Batteries.*

The three Field Batteries drilled in Camp, the Montreal and Richmond at their Local Headquarters; the Shefford Field Battery in Camp St. Johns.

The Inspector of Artillery will report on the state of these Batteries. I am informed that the Montreal Field Battery turned out better, if possible, than it ever did before, and great credit is therefore due to Lieut.-Col. Stevenson and all ranks (3). I should be glad to see Lieut.-Col. Stevenson placed in command of the Field Artillery in my District, and consider his past valuable services to the Militia force fairly entitle him to promotion.

*Garrison Artillery.*

The Montreal Brigade Garrison Artillery performed drill at Local Headquarters, and were mustered for pay by Lieut.-Col. Worsley.

In consequence of the re-building of the Drill Shed the arms and stores in possession of this Corps had to be removed to the District stores, which prevented the Brigade being inspected in their exercises by the Inspector of Artillery.

The drills have been faithfully put in and I have much pleasure in being able to report great improvement in the appearance and efficiency of the Corps. Lieut.-Col. Oswald and his Officers are indefatigable in promoting its welfare, and are deserving of great credit. A suitable building will have to be leased for this Corps and the Field Battery to drill in in the spring, otherwise their efficiency cannot be maintained. The St. Johns Garrison Battery drilled at Local Headquarters, passing a creditable inspection.

*Infantry—City Corps.*

The 1st Prince of Wales Rifles were inspected by the Major-General Commanding on the 20th October.

The 3rd Victoria Rifles of Canada were inspected also by the Major-General Commanding, on the 17th June, and the 5th Royal Scots of Canada on the 20th October. I think I may say that the Major-General expressed himself satisfied with the appearance and drill of these Corps (4). The 6th Fusiliers were inspected by Lt.-Col. Worsley on the 27th October, who reports that this Regiment passed a highly satisfactory inspection in every particular (5). I inspected the 53rd Battalion at Sherbrooke on the 22nd September. The Regiment paraded rather weak, and the inspection was not as satisfactory as I could have wished. I pointed out defects and hope to find a marked improvement next year.

In compliance with General Orders No. 9, 10th May 1883, (6) the undermentioned Corps assembled in Camp St. John's, P.Q., on the 26th June, under my command, viz: 6th Cavalry, Shefford Field Battery, 11th, 50th, 51st, 52nd, 58th and 60th Battalions, with the following Staff: Lt. Col. Worsley, Brigade Major, Chief Instructor of Musketry; Lt.-Col. Mattice, Brigade Major; Major Atkinson, Assistant Brigade Major; Captain Trotter, Provost Officer; Captain Clapham, Supply Officer; Surgeon Major Mayrand, Principal Medical Officer; Major H. R. Smith, Orderly Officer, and Captain P. Smith, Camp Quartermaster.

The Camp was pitched on the Government property, the Corporation of St. John's providing a drill ground and Rifle Range. The orders from Headquarters respecting the Annual Drill were strictly carried out.

Target Practice was carried out under the superintendence of Lt.-Col. Worsley (7.) every man firing the prescribed number of rounds, and I beg to append Target Practice returns. The Rifles in general require repairs, but with only one Armourer it will be some years before all can be put in order (8). The Armourer is at present at work on the Arms of the 11th Battalion, which will occupy his time all this winter.

The equipment is very defective and should be attended to (9). I may say there is not a single Corps in my District at present fit to take the field. I hope the valise equipment, of which there is a supply in store, may at least be served out to my

ty Corps (10). The rations were excellent, and there were no complaints. The Supply Officer, Capt Clapham, performed his arduous duties to the entire satisfaction of all, and deserves much credit (11). With the exception of the Cavalry and 58th Battalion, all Corps mustered weak. I called upon Officers commanding Regiments and Companies to state the causes in writing, and the correspondence has already been forwarded to Headquarters, together with a return of weak Companies. It appears to me that some rule should be laid down determining the minimum strength of effective Companies, and that any Officer joining a Camp with his Company under the prescribed strength, should render himself liable to be removed from the Active List (12.)

Each year rural Corps in my District turn out weaker, and this year two Corps, the 50th and 52nd, came into Camp mere skeletons with a full compliment of Officers, a circumstance much to be deplored. I am inclined to think it would be advisable to re-organize the Frontier Force in my District, by amalgamation of Corps and reduction of Companies (13). I consider this a matter for serious consideration.

The health of the Troops in Camp was excellent, also their conduct.

The Young Men's Christian Association provided a tent, which was well patronized by the men, and a great boon to them:

I again beg to bring to your notice that the Independent Company, "St. Georges and St. Sebastien," ordered into Camp, failed to put in an appearance, and I have therefore to recommend that it be disbanded (14). This Company has not drilled for years, and it is only a bill of expense keeping it on the strength of the Force.

#### 79th Battalion.

This Battalion was allowed to drill in Camp at Local Headquarters, assembling at Waterloo on the 17th September. I inspected the Camp on the 27th September, finding it well laid out and very clean. The orders for the Camp were well carried out. The health of the Corps was excellent. I regret to say there was one death, but that was from old age and exposure, as from enquiries I made the man should not have been taken on the strength of the Corps. The Regiment turned out for inspection fairly clean, though I was disappointed in their drill and general appearance, expecting to find them better up in their work, having been in Camp for three years in succession (15). All Corps were mustered by the District Paymasters in my presence, and the regulations on the subject were strictly observed. The Camp staff performed their onerous duties to my entire satisfaction, and my thanks are due to one and all. Guards of Honor were furnished by the Montreal Garrison Artillery, the 1st Prince of Wales' Rifles, and an escort from No. 1 Troop, 6th Cavalry, on the occasion of His Excellency, the late Governor-General's farewell visit to Montreal, on which occasion His Excellency and H. R. Highness the Princess Louise were graciously pleased to inspect the 6th Fusiliers in the Skating Rink, when Her Royal Highness presented prizes to the successful competitors at the last Dominion Rifle Associations' matches at Ottawa, the challenge shield presented by the auxiliary forces of Great Britain being one of the prizes won by the Regiment.

The Brigade turned out on the 24th of May in honor of the day, the 65th Rifles joining my parade.

The Brigade also attended divine service in July, the Major-General Commanding being present.

In conclusion I think I may be permitted to say that the Montreal force continues to sustain its reputation as second to none in the Dominion (16).

I have the honor to be, Sir,

Your Most Obedient Servant,

BOWEN VAN STRAUBENZEE, Lieut.-Colonel,  
Deputy Adjutant-General, Military District No. 5.

The Adjutant General's Headquarters,  
Ottawa,

## NOTES BY MAJOR-GENERAL COMMANDING.

- (1) Very satisfactory.
- (2) I quite concur.
- (3) I had much pleasure in seeing this Battery.
- (4) I was pleased with all these three Corps.
- (5) I had the pleasure of seeing this Battalion myself at a church parade.
- (6) The remarks I issued after seeing the Troops in Camp are attached to my Report.
- (7) I had pleasure in seeing how Lieut.-Col. Worsley does his duty as Inspector of Musketry.
- (8) I beg to call attention to this state of things.
- (9) And to others also.
- (10) I quite concur in this recommendation.
- (11) Very satisfactory.
- (12) I concur.
- (13) I concur.
- (14) I concur.
- (15) I regret to hear this, as I saw this Battalion in fair order three years ago.
- (16) I quite concur as regards the Urban Corps.

## MILITARY DISTRICT NO. 6.

HEADQUARTERS, Montreal, November 22nd, 1883.

SIR,—I have the honour to report, for the information of the Major-General Commanding, that the present established strength in the District is as follows :

*Rifles.*

	Officers, N.C.O. and Men.
64th Voltigeurs, Beauharnois .....	278
65th Mount Royal Rifles.....	368
70th Voltigeurs de Chateauguay.....	278

*Infantry.*

80th Nicolet Battalion.....	278
83rd Joliette Battalion.....	278
84th St. Hyacinthe Battalion.....	278
85th Battalion .....	278
86th Three Rivers Battalion.....	278

Total ..... 2,314 (1)

That the Corps selected for annual drill 1883-4, with the Companies slightly reduced, in order that a larger number of Battalions might be called out, convinced as I was, that the Companies would not turn out complete, were :—

	Co'y.	Staff.	Off.	N.C. O. and Men.	Total.
64th Battalion.....	6	7	18	228	253
65th Battalion.....	8	7	24	336	367
76th Battalion.....	6	7	18	228	253
80th Battalion.....	6	7	18	228	253
84th Battalion.....	6	7	18	228	253
85th Battalion.....	6	7	18	228	253

Total..... 1,632

That the quota allowed for this year's drill in the District under my command was 1,600.

*Laprairie Camp.*

That on the 26th June last, a Brigade Camp of exercise for twelve days was commenced at Laprairie, with the following staff :—

Deputy Adjutant-General in Command.  
Lieut.-Col. E. Lamontagne, Brigadier-Major.

Lient Col. J. J. Sheppard, 83rd Battalion, Musketry Instructor.  
 Major J. Bte. Emond, 86th Battalion, Camp Quartermaster  
 Capt. Dostaler, 83rd Battalion, Provost Officer.  
 Capt. Charles Leveque, 86th Battalion, Supply Officer.  
 Capt. H. Prevost, 65th Battalion, Orderly Officer.  
 Adjutant Joseph E. Parent, 83rd Battalion, Assistant Brigade-Major.  
 Surgeon Antoine M. Rivard, 83rd Battalion, Principal Medical Officer.

That the Corps which performed drill in Camp at Laprairie, as above mentioned, were—present in Camp :

64th Battalion, Lieut.-Col. J. M. Prudhomme.....	159
76th Battalion, Lieut.-Col. P. A. Rodier.....	121
80th Battalion, Lieut.-Col. E. S. Foy.....	158
84th Battalion, Lieut.-Col. Doherty.....	180
85th Battalion, Lieut.-Col. Brosseau.....	258
	<hr/>
	876
83rd Battalion, at Joliette.....	177
86th Battalion, at Louisville.....	197
	<hr/>
	1,250
65th Battalion.....	271
	<hr/>
Total .....	1,521

The 65th Battalion, Lieut.-Col. Ouimet, after having performed the Annual Drill at its *Battalion Headquarters*, Montreal, obtained special permission from Headquarters to join the Laprairie Camp for four days, from the 29th June until the 2nd July, the day upon which I inspected that Battalion.

The Battalion went through different Battalion movements with ease and precision, and looked remarkably well. Present on parade, 27—all told.

Their joining the Camp was with the express understanding that they were to receive no pay for the four days' extra drill.

I am happy to be able to report that the conduct of the troops during Camp was very good—that no accident of any kind (to the troops) took place during that period.

#### 64th Battalion—Lieut.-Col. J. M. Prudhomme.

This Battalion turned out only 159 strong at Camp.

The Commandant, Lieut.-Col. J. M. Prudhomme, has the misfortune of having become, since a few years, the victim of an *increasing deafness* which *seriously interferes with his usefulness* when commanding his battalion at Brigade drill, and as he has now attained the age of *sixty-one*, I think it my duty to recommend that he be placed on the retired list (3) according to general orders, (23) 9th November, 1883, paragraph 2.

#### 76th Battalion—Lieut.-Col. P. A. Rodier.

This Battalion turned out very weak at Camp—merely 121 strong.

The Commandant, P. A. Rodier, is a sickly man—always sick during the annual exercises in Camp—unable to sleep under canvass.

Moreover Lieut.-Col. P. A. Rodier resides in Montreal—far away from his officers and men, all residing in the County of Chateauguay—it is therefore *very* difficult for him to communicate with his officers and men as often as the advantage and benefit of the service would require; this being against the spirit and letter of the 58th paragraph of the rules and regulations for the Militia—I think it my duty under these circumstances, that Lieut. Col. P. A. Rodier be placed “on the retired list” (4).

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*80th Battalion—Lieut.-Col. E. DeFoy.*

Present in Camp, 158 all told; this is a good Battalion. The Commandant of this Battalion is a good and efficient officer.

*84th Battalion—Lieut.-Col. Doherty.*

Present in Camp, 180; this is a good Battalion—has a good band. I regretted to see that it did not turn out as strong at this Laprairie Camp, as it did at the Berthier Camp, last September. The Commandant is a good and energetic officer.

*85th Battalion—Lieut.-Col. Brosseau.*

This was by far the strongest of the five Battalions in Camp, turning out 258, all told. The men were well clothed, well equipped and looked remarkably well.

Lieut.-Col. Brosseau deserves a great deal of praise for the manner in which he turned out his Battalion (85th) for this Camp. This Battalion has a very good band.

*83rd Battalion, Joliette—Lieut.-Col. J. J. Sheppard.*

This Battalion, through the kind permission of the Hon. Minister of Militia, was allowed a twelve day's camp at Joliette, under the supervision of Lieut.-Col. E. Lamontagne, Brigade-Major.

On the 29th August last, I inspected this Battalion, just a day before the breaking up of the Camp.

Present on parade, 177, all told; No. 2 Company did not attend Camp.

I found the Camp well situated; the tents correctly pitched; the guards properly mounted; uniforms, arms and equipments in fair order; the men looked well; the manual and firing fairly done; the marching past was not well done; No. 5 Company's marching past was far from being good, and marred the general effect of the marching past. However, several attempted Battalion movements, as well as some in extended order, were well done. The Commandant of this Battalion is a good and efficient officer.

*86th Battalion—Lieut.-Col. F. Houde.*

This Battalion also obtained permission to camp out for the period of twelve days, at Louisville, under the supervision of Lieut.-Col. Lamontagne, Brigade-Major.

On the 5th October last, a day before the breaking up of this Camp, I inspected this Battalion.

I found the Camp well situated and laid out; the tents correctly pitched; the Camp clean; the guards properly mounted; uniforms and arms in good order; the men had a soldierly appearance.

Present on parade, 197, all told; the marching past was very good; different movements and formations in line, in column, in echelon, deployments, changes of front, &c., were well done. I can say the same thing of the movements in extended order.

I was much pleased with this Battalion, and the Commandant deserves a great deal of praise for his zeal, energy, and the able manner with which he handled his men on the day of my inspection.

*Rifle Associations.*

Four Rifle Associations have had matches this year in the District under my command: The 65th Battalion, Lieut.-Col. Ouimet, President; the 83d Battalion, Lieut.-Col. J. J. Sheppard, President; the 85th Battalion, Lieut.-Col. Brosseau, President; the 86th Battalion, Lieut.-Col. F. Houde, President. The returns of the 83d, 85th and 86th Battalions are forwarded with this report.

I cannot get that of the 65th Battalion, though Lieut.-Col. A. Ouimet has been frequently written to about it.

*Drill Companies—Joliette College.*

On the 4th April last, I inspected the Drill Company of this College. Present on parade, 3 officers, 40 N. C. O. and men; manual and firing good; squad and Company movements good. On the 16th of this month this Company was again inspected. Present on parade, 3 officers, 47 N. C. O. and men: manual and firing, squad and Company movements performed in a creditable manner. The drill was taught with care and ability by Sergeant Savagnac, of "A" Battery.

This College deserves special mention for the trouble its directors take to see that their pupils receive as good an idea of a military training as is possible, under the circumstances; and, although no great efficiency can be attained beyond the preliminary drill there, still the boys acquire a military bearing and a certain knowledge that will scarcely ever be forgotten.

I beg to be allowed to again thank Lieut.-Col. E. Lamontagne, Brigade-Major of this District, for the very efficient and always willing aid he has constantly given me, both at the office here and in Camp during the present year.

I have the honor to be, Sir,  
Your obedient servant,

A. C. de LOTBINIERE-HARWOOD, Lieut.-Colonel,  
Deputy Adjutant-General, Military District No. 6.

To the Adjutant-General of Militia, Ottawa.

NOTES BY MAJOR-GENERAL COMMANDING.

(1) Total establishment, No. 6, 2,314; quota for drill, 1882-3, 1,600; leaving not to be drilled, 714. Of the 1,600 permitted to drill only 1,521 did drill, leaving pay for 79 men. Of the total, 2,314, only 1,521 drilled in 1882-3; leaving men not drilled this year, 793.

(2) For the opinion of the G. O. C. on the Camp of this District, at Laprairie, see G. O.'s report.

(3) Recommended for retirement.

(4) Recommended for retirement.

MILITARY DISTRICT No. 7.

QUEBEC, 12th November, 1883.

SIR,—Agreeably to circular dated Ottawa, 5th October, 1883, I have the honour to transmit, for the information of the Major-General Commanding, this my Annual Report upon the state of the Militia in my District for 1883-84.

The established strength of Corps is as follows:—

	Officers, N.-C.O. and Men.
Cavalry (2 Troops).....	96
Field Battery (1 Battery).....	81
Garrison Artillery (6 Batteries) .....	270
Infantry (74 Companies) .....	3,417
	<hr/> 3,864 (1)

The number of Active Militiamen authorized for Annual Drill:—

In Camp.....	1,598
At Headquarters.....	1,077
	<hr/> 2,675

## Corps selected to perform drill in Camp :—

	Officers.	N.-C. Officers and Men.
Quebec Field Battery.....	6	70
Gaspé Battery, G.A., drilled at Headquarters.		
55th Battalion Megantic Light Infantry.....	16	201
61st " Montmagny Infantry.....	17	184
81st " Portneuf Infantry .....	25	174
87th " County Quebec Infantry.....	23	246
88th " Kamouraska Infantry.....	25	240
89th " Temiscouata Infantry .....	24	268
Staff .....	9	10
	145	1,393

## Corps which performed drill at Headquarters :—

Gaspé Battery, G.A.....	3	34
No. 1 Battery Lévis Garrison Artillery.....	2	37
No. 2 " " " .....	2	22
23rd Battalion, V.M.....	15	132

## Corps which will perform Annual training during the winter months :—

	Officers.	N.-C. Officers. and Men.
Cavalry (2 Troops).....	12	84
Garrison Artillery (3 Battteries).....	9	126
8th " Royal Rifles ".....	26	252
9th Battalion " Voltigeurs ".....	33	336
	80	798

## Corps not authorized to drill and did not assemble in Camp :—

17th Battalion, V.M. (8 Companies).....	368
70th " " (6 " ).....	278
Dorchester Battalion (4 " ).....	185
	831

## GENERAL REMARKS.

*Lévis Divisional Camp.*

In compliance with General Order, 10th May, 1883, the following Corps assembled at Engineer Camp, Lévis, on the 26th June, 1883, viz. :—

*Artillery.*

Quebec Field Battery, Major Lindsay.

*Infantry.*

55th Battalion, Major Ward.

61st	"	Lieut.-Col. Colfer.
81st	"	" Beaudry,
87th	"	" Laurin.
88th	"	" Fraser.
89th	"	" Hudon.

The Divisional Staff consisted of the following officers :—

Lieut.-Col. Duchesnay, D.A.G., in Command ; Lieut.-Col. d'Orsonnens, Brigade-Major ; Lieut. T. Aylwin, 8th Royal Rifles, Assistant Brigade-Major ; Lieut. D. P.

Casgrain, R.M.C., Orderly Officer; Lieut.-Col. Evanturel, 9th Rifles, Provost Officer; Lieut.-Col. Duchesnay, 23rd Battalion, Musketry Instructor; Lieut.-Col. Forrest, D.S.C., Camp Quartermaster; Surgeon R. E. D. King, Principal Medical Officer; Captain G. Vien, Levis Battery, Supply Officer.

The Quebec Field Battery, under Major C. Lindsay, was the first to arrive at Camp, having marched from Quebec early in the morning. This Battery, as usual, mustered strong and was completely equipped. On arrival they were quartered in the Royal Engineer huts.

#### *Quebec Field Battery.*

This Battery, as in former years, has proved a credit to my District, and I beg to report most favorably as to its efficiency (2).

The Quebec Field Battery made the highest score in the competition at target practice, under rules of the Dominion Artillery Association, and won the Governor General's prize for general efficiency.

The Country Battalions did not reach Camp until the afternoon, and as they arrived were detailed to their several lines by the Brigade-Major.

This year there was a decided improvement in the drill, and in general the officers were more attentive in the performance of their several duties, and in the carrying out of the orders laid out in the G.O., 17th May, 1883.

On the 6th of July, the Major-General Commanding arrived in Camp. After the men's dinners, the several Corps assembled on their private parades for his inspection. The General rode first around the Camp, surveying all the arrangements, and afterwards inspected each Battalion, noting and pointing out any irregularity to the Commanding Officers of Battalions as he proceeded.

Shortly after his departure from camp, I received a memorandum from him, which memorandum I was instructed to make known to the force under my command.

It read as follows: (This memorandum is attached with others to the G.O's, Report).

The supplies again this year were of the best quality and afforded general satisfaction amongst the troops.

The cleanliness of the Camp was generally commended and greatly conduced to the enjoyment of good health and general comfort by the men. The Camp Quartermaster visited the camp daily, and enforced the carrying out of orders to that effect.

The health of the troops in Camp was excellent, and Dr. King, the Principal Medical Officer, in his Official Report to this office, says that he found very little illness of a serious nature amongst either Officers or men, that the Camp was remarkably cleanly throughout, &c. To this Officer my thanks are due for his untiring zeal, as besides his duties of the Principal Medical Officer; he also acted as Surgeon of his own Battalion, the 55th Megantic Light Infantry.

The recommendations repeatedly made by my colleagues and myself as to the necessity of establishing permanent Infantry Schools, have, at last, I am happy to state, met with favorable consideration by the authorities at Headquarters, by the establishment of three Infantry Schools respectively in Ontario, Quebec and New Brunswick.

The Government, in view of the greater efficiency of these Schools, have sent Officers to England, who have been attached to a regular regiment for a course of three months' instruction, prior to appointment to the several commands. We may, therefore, safely expect beneficial results to be derived by the Militia of Canada by the formation of these three permanent Infantry Schools.

#### *23rd Battalion, "Beauce."*

The 23rd Battalion, under the command of Lieut.-Col. Duchesnay, camped at Ste. Marie for a period of twelve days. The site for the Camp was well chosen, and afforded every advantage in the way of water and space for exercise ground. I was

pleased at my inspection to notice how regularly the Major-General's instructions had been carried out. Some Officers were called out each in the r turn, and required to put the men through Company and Battalion drill, which movements were executed very creditably. The total strength assembled in Officers, Non-commissioned officers and men amounted to 147.

#### DRILL, 1882-83.

##### *Queen's Own Canadian Hussars.*

This Corps was inspected by me on the 28th of May last on completion of their annual training, which they performed during the winter months. The Queen's Own Canadian Hussars paraded 78 strong with 78 horses.

The squadron went through the usual movements of marching past at a walk and at the trot. The commanding officer afterwards put them through some field movements, which were steadily executed. Several Officers were called out to perform the sword exercise at the halt and on the move. The manner in which the whole movements and exercises were done reflected great credit upon the officers, who have shown zeal and attention during their training. The Queen's Own Canadian Hussars have a trumpet band of seven performers. Greater efficiency may be expected in this particular branch of the service, as a permanent School of Cavalry is to be formed jointly in the Provinces of Quebec and Ontario during the ensuing months, under Lieut.-Col. Turnbull, who has been specially trained in England, to take command and instruction. It is to be hoped that the Officers, Non-commissioned Officers and men of Cavalry Corps will avail themselves of its formation to enter for a course of instruction.

##### *The 8th Royal Rifles.*

The 8th "Royal Rifles," which paraded 304 men, all told, were inspected by me on the Plains of Abraham, on the 24th May last.

It seems partial on my part to report year after year on the great efficiency attained by this Corps (3); but it is again my pleasant duty to do so. The great concourse of spectators who were present on the ground at the inspection were loud in praise as to the fine appearance of this Battalion.

The 8th Royal Rifles possess an efficient brass and reed Band, which the Officers very commendably place at the disposal of the citizens during the fine summer months. There is also a bugle Band.

A signal Corps, composed of twelve intelligent and educated young men, has been formed in connection with this Battalion, under the control and instruction of Capt. W. E. Russell. The Officers, at considerable personal expense, have provided themselves with all the necessary appliances, and the Corps of signallers is very efficient (4). I was present on several occasions when sealed messages were sent and delivered from a distance of over five miles with flags; and the same were correctly received in a short space of time.

This Signal Corps have also imported heliographs, and in September last H. M. "Canada," having on board Prince George of Wales, was reported by heliograph from Cape Tourmente to Quebec, a distance of thirty-five miles.

I would specially bring to your favorable notice the efficiency of this particular branch, which in time of emergency would prove of great service.

I hope that at an early date the Department will consider the advisability of supplying the efficient Corps of Militia with a complete uniform outfit for the above purposes, and so relieve the Officers from fresh expenditure (5).

##### *9th Battalion "Voltigeurs."*

This Corps performed its annual drill for 1882-83, and paraded for my inspection in the drill shed on the 21st May last, the weather being too boisterous to permit the Battalion from being seen in the field.

The 9th " Voltigeurs " did not, as in former years, file as strong an appearance, owing to some want of organization ; but the four Companies which I saw on that day, and the manner in which the several Company and Battalion movements were performed, showed that the Battalion would not be long in regaining its former efficiency. The total strength on parade was 168 Officers, N. C. O. and men (6).

#### *Quebec Field Battery.*

This Battery, as in former years, has proved a credit to my District, and I beg to report most favorably as to its efficiency (2).

The Quebec Field Battery made the highest score in the competition at target practice, under rules of the Dominion Artillery Association, and won the Governor General's prize for general efficiency.

#### *Infantry School of Instruction.*

An Infantry School for Officers and Non-commissioned Officers of the Active Militia corps opened at Quebec on the 8th of January last, in accordance with General Order of the 6th December, 1882, and continued until the middle of April. Lieut.-Col. Duchesnay, D.A.G., Commandant ; Lieut.-Col. D'Orsonnens, Brigade-Major, Adjutant ; Captain Frève, 89th Battalion, Assistant Adjutant ; Sergeant Phillips, " A " Battery, Instructor.

Thirty-seven Officers and non-commissioned officers entered the school for instruction, and the same obtained second-class certificates.

My best thanks are due to Lieut.-Col. Cotton, Commandant of " A " Battery, R.S.G., through whose kindness a thorough practical knowledge in the interior economy of a battalion was imparted to the Cadets.

Two Officers reported themselves daily for duty at the Citadel, and were attached to the Officer of the day for the performance in detail of that duty.

Two Non-commissioned Officers were also detailed as Orderly Sergeants, and reported themselves daily to the Sergeant-Major of " A " Battery for duty.

The Officers were required during their stay at school, to attend as supernumeraries on District Courts Martial, and to make special report as to how the proceedings were carried out.

I consider that a great deal of good was obtained by the formation of these schools, and results were clearly shown during Camps by the manner in which officers and non-commissioned officers trained at the above schools performed their duties.

I take this opportunity to thank Lieut.-Col. D'Orsonnens for the support he has given me in bringing the school to a proficient standing.

Having been appointed in command of the Permanent Infantry School about to be established at St. John, P.Q., and having also been attached to an Imperial regiment at Aldershot, for three months, the knowledge and experience gained by Lieut.-Col. D'Orsonnens will prove of great service to the Militia. In his future career he has my best wishes for success.

Captain Frève, of the 89th Battalion, acted as Assistant Adjutant of the school, and proved himself a good drill and a strict disciplinarian.

Sergeant Phillips, of " A " Battery, as Sergeant-Major, performed his duties with his usual ability, and gave general satisfaction.

#### *Rifle Association.*

The different Rifle Associations in my District have kept up their annual meetings and are very efficient.

In the annual competitions of the Dominion and Provincial Rifle Associations, the Stadacona and 8th Royal Rifles, R. A., have held their own, winning the best prizes and heading the list of the Wimbledon Team for next year (7).

## REMARKS.

I beg to acknowledge, in bringing my Report to a close the hearty co-operation and assistance which I received from the Officers of my District Staff.

I have the honor to be, sir,  
Your obedient servant,

T. J. DUCHESNAY, Lieut. Colonel.  
Deputy Adjutant-General, Military District, No. 7.

The Adjutant-General of Militia.

## NOTES BY THE ADJUTANT GENERAL COMMANDING.

(1) Total, 4021.

(2) I had the pleasure of seeing this Battery on parade and can speak of it in the same high terms as formerly.

Major Crawford Lindsay deserves very great credit for its efficiency. All it wants is to be supplied with more modern guns.

(3) I am glad to receive so good a report.

(4) Signalling is so important a matter in these days that I recommend that these Officers should not have to bear these expenses and that arrangements be made to establish an entire uniformity of system in all the signalling Corps of the Dominion, under a duly qualified Instructor.

(5) The expense of obtaining Heliographs should, I think, be borne by the public.

(6) I am sorry to observe such weakness in the returns. No. 1 Company, only 8 men; No. 6 Company, only 8 men; No. 8 Company, only 10 men; No. 3 Company, only 16 men; No. 2, Company, only 17 men. Pay should, I think, be stopped from such Companies.

(I am glad to hear so good on account of the Rifle Association.

## MILITARY DISTRICT No. 8.

DEPUTY ADJUTANT-GENERAL'S OFFICE,  
ST. JOHN, N.B., 24th November, 1883.

SIR,—I have the honour to forward, for submission to the Major-General Commanding, the tabular Inspection Return of this District, being the detail of annual drill.

The following is the strength of the Active Militia, by arms, in the District.

Strength of existing corps is:—

*Cavalry.*

8th Regiment (7 Troops).....	29	315
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*Field Artillery.*

Newcastle, } (2 Field Batteries).....	12	158
Woodstock, }		

*Garrison Artillery.*

N. B. Brigade (6 Batteries) .....	26	252
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*Engineers.*

The Brighton (1 Company).....	3	42
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*Infantry and Rifles.*

62nd Battalion Fusiliers (6 Companies).....	26	272
67th " (9 Companies).....	35	398
71st " 7 " .....	29	314
73rd " 5 " .....	21	230
74th " 6 " .....	25	272
Independent 2 " .....	6	84

The number of Active Militiamen authorized for annual drill were:—

In Camp.....	96	1,031
At Headquarters.....	64	497
	<u>160</u>	<u>1,534</u>

The Corps which performed drill in Camp (at Sussex) were:—

*Cavalry.*

The 8th Regiment, Lieut.-Col. Domville, 4 Troops.

*Engineers.*

The Brighton Company, Major Vince.

*Infantry and Rifles.*

67th Battallion, Lieut.-Col. Upton (9 Companies).

71st " " Marsh (7 " ).

The Corps which performed drill at Headquarters were:—

*Field Artillery.*

The Newcastle Battery, Major R. R. Call, in Local Camp.

The " Woodstock " " " Dibblee, " "

*Garrison Artillery.*

New Brunswick Brigade, Nos. 1, 2, 3, 7, 9 and 10 Batteries, Lieut.-Col. Foster..

*Infantry.*

62nd Battallion, St. John Fusiliers, Lieut.-Col. Blaine, 6 Companies.

St. John Rifle Company, Captain Hartt

5. Corps which did not perform Annual Drill.

Authorized to drill.—Nil.

Not authorized to drill.

*Cavalry.*

Nos. 1, 2 and 4 Troops, 8th Regiment.

*Infantry and Rifles.*

73rd Battalion.

74th " "

St. George Infantry Company.

SPECIAL REMARKS.

BRIGADE CAMP AT SUSSEX.

The above Corps which were ordered to drill in Camp, assembled at Sussex on the 24th September for twelve days' drill; all turned out in good strength, though there was a large proportion of recruits.

*The 8th Regiment of Cavalry* (1).

Four Troops of this fine Regiment under command of Lieut. Col. Domville were present. Their horses are of a very good and serviceable stamp, plenty of bone, good size and well fitted for cavalry duties, and as I am able to report that they received special commendation from the Major-General, it is evident that every officer and man must have made great exertions to merit his approval.

There is an excellent *esprit de corps* in the Regiment, and Lieut.-Col. Domville pays great attention to his Corps. Permission has lately been received that the designation of "*The Princess Louise New Brunswick Regiment of Cavalry*" has been conferred upon it.

*Artillery.*

The "Newcastle" and "Woodstock" Field Batteries performed drill in local camps; the New Brunswick Brigade of Garrison Artillery drilled at local Headquarters and were inspected by the Inspectors of their arm of the service.

*Engineers.*

The "Brighton" Engineer Company (2) drilled in Brigade Camp at Sussex, and as in former years was the most useful Corps in Camp, saving considerable expense to the Department.

Major Raban, Inspector of Engineers, stopped a great part of the time with them in Camp, and his instructions were of much advantage to them, while the Staff and other Officers benefited by his lectures, and the practical use of the "Heliograph."

Infantry in Camp:—

67th Battalion.

71st Battalion.

These are two Corps of very fine physique. They were in Camp here two years ago, and I found them much improved since then. They all worked hard to perfect themselves and to parade in a smart and soldier-like manner for the Major-General's inspection, (3) and I am happy to report that he expressed himself much pleased with their turn out. I noticed with pleasure the great anxiety every one in Camp evinced to obtain the favourable remarks of the Major-General. No trouble was too great to make the Corps as perfect as the means at hand would permit of.

*Strength at Camp.*

The Cavalry were full strength, being 3 Officers and 42 men per troop, with 7 Staff.

The Engineers, 2 Officers and 42 men; full strength.

The 67 Battalion wanted only 7 Officers and 5 men to complete full strength of 401 (4).

The 71st Battalion had only 3 Officers and 8 men wanting to complete full strength of 323 (5).

I need hardly say that a large proportion of these were recruits. There was daily squad inspection and the men were chiefly instructed in squad and Company drill.

The health of the Camp was excellent though the weather was cold; the rations were good and sufficient.

I made a careful inspection of the arms, equipments and clothing of every man and found them serviceable; the clothing of very good quality—most of it was new.

*Bands.*

The 8th Cavalry Band is very good; the 67th Band, moderate; the 71st Band, poor.

*Inspection by the Major General.*

On the 4th October, the Major-General inspected the Camp, and after a critical personal inspection of every man by Companies in the forenoon, and a Brigade parade and Field-day in the afternoon, he issued a highly complementary order expressing his great satisfaction at the creditable turn out.

I regret to report that the behavior of the men in Camp—the Engineers excepted—was not as good as usual, and also that several of them damaged the good name of their Corps by firing blank cartridge out of the railroad cars during their return home. I need hardly express my opinion that the *Officers are greatly to blame far permitting such conduct.*

*Buglers.*

There are hardly any Buglers now in the Maritime Provinces fit to sound the necessary calls for carrying out the duties of Camp at the proper hour (6). I would beg to suggest that those going to Camp may receive 6 day's extra pay to practice before Camp, because unless they do so their lips get tender and they cannot sound the calls—the extra pay would only be given at end of the Camp, after it had been found the Bugler was efficient all the time.

*City Corps.*

I inspected the 62nd "St. John Fusiliers" on the 9th instant; the Regiment mustered in full strength (7) and presented a highly creditable appearance—their field movements and attack in extended order were well done. The Battalion has improved greatly the last two years; they have church parade once a month in summer, and weekly drills all through the year, and altogether are in an efficient state. The Officers have provided regulation Fusilier busbies for the whole Battalion, which adds much to their appearance on Parade.

The St. John Rifle Company, which I inspected on the 9th instant, is a very smart Company of picked men, completely equipped and remarkably well drilled (8). I was very much pleased with their appearance.

The Rifle Associations of the Province are in a flourishing condition, particularly the Provincial one, which is doing much good by stimulating rifle practice and encouraging others to join.

I beg to express my thanks to the following Staff Officers of the Brigade Camp at Sussex, for the cordial support and willing assistance they gave me, viz:—

*Brigade-Major*, Lieut.-Col. C. Crewe Read, B. M., No. 8.

*Asst. Brigade-Major*, Lieut. H. M. Campbell, 8th Regt. Cavalry.

*Supply Officer*, Capt. Thomas McKenzie, Militia Staff.

*Camp Quartermaster*, Major S. U. McCulley, 73rd Battalion.

*Instructor of Musketry*, Capt. E. T. Sturdee, "St. John Fusiliers."

*Orderly Officer*, Major A. Markham, 8th Regiment Cavalry.

*Provost Officer*, Lieut.-Colonel E. B. Beer, 74th Battalion.

*Medical Officer*, Surgeon C. P. Connell, 67th Battalion.

I have the honor to be, Sir,

Your obedient servant,

JOHN B. TAYLOR, Lieut.-Colonel,

Deputy Adjutant-General, Military District No. 8.

The Adjutant-General of Militia,  
Ottawa.

## NOTES BY MAJOR-GENERAL COMMANDING.

(1) I was glad to observe marked improvement in this Regiment, but saddlery is, I regret to say, old, and some of it unserviceable.

(2) An excellent Corps, of which I have spoken in the Report of the Inspector of Engineers.

- (3) And I was much pleased with them.  
 (4) Very satisfactory.  
 (5) Very satisfactory.  
 (6) I hope that when the school of Fredericton is established instructions in bugling may be given.  
 (7) Very satisfactory.  
 (8) Very satisfactory.

## MILITARY DISTRICT No. 9.

## DEPUTY ADJUTANT-GENERAL'S OFFICE.

St. JOHN, 24th November, 1883.

SIR,—I have the honour to forward, for submission to the Major-General Commanding, the tabular Inspection Return of Military District No. 9, being the details of Annual Drill.

The following is the established strength of the Active Militia, by arms, in the District:—

The strength of the existing Corps is:

*Cavalry.*

	Officers.	N.-C. Officers and Men.
The King's Troop (1 Troop).....	3 .....	42

*Field Artillery.*

Halifax Field Battery (1 Battery).....	5 .....	100
Sydney " " (authorized, but not organized yet).....	3 .....	79

*Garrison Artillery.*

1st Halifax Brigade (6 Batteries).....	25 .....	272
2nd " " (6 Batteries).....	25 .....	272
Digby Battery (1 Battery).....	3 .....	42
Lunenburg Battery (1 Battery).....	3 .....	42
Mahone Bay Battery (1 Battery).....	3 .....	42
Pictou Battery (1 Battery).....	3 .....	42
Yarmouth Battery (1 Battery).....	3 .....	42

*Infantry and Rifles.*

63rd "Halifax Rifles" (6 Companies).....	25 .....	272
66th "Princess Louise Fusiliers" (8 Companies)	32 .....	356
68th Battalion (9 Companies).....	35 .....	398
69th " (9 " ).....	35 .....	398
72nd " (6 " ).....	25 .....	272
75th " (6 " ).....	25 .....	272
78th " "Highlanders" (7 Companies).....	28 .....	314
Cumberland Provisional Battalion (5 Compan's)	20 .....	230
Victoria Provisional Battalion (5 Companies).....	20 .....	230

3. The number of active militiamen authorized for annual drill were:—

	Officers.	N.-C. Officers and Men.
In Camp.....	138 .....	1,158
At Headquarters.....	102 .....	1,128
Total.....	<u>240</u>	<u>2,286</u>

## 4. The Corps which performed drill in Camp—at Pictou—were :—

*Infantry.*

The 68th Battalion, Lieut.-Col. Chipman, 7 Companies.  
 The 69th “ “ Starratt, 9 “  
 No. 6 Company, 75th Battalion, 1 Company.  
 The 78th Battalion, Lieut.-Col. Blair, 7 Companies.  
 Cumberland Provisional Battalion, Major Harrison, 5 Companies.  
 Argyle Highlanders, Lieut.-Col. Bingham, 5 Companies.

## The Corps which performed drill at Headquarters were :—

*Artillery.*

The 1st Halifax Brigade, Garrison Artillery, Lieut.-Col. Mowbray, 6 Batteries.  
 The Digby Battery, Capt. Daley.  
 The Lunenburg Battery, Capt. Brown.  
 The Mahone Bay Battery, Capt. James.  
 The Pictou Battery, Capt. Gordon.  
 The Yarmouth Battery, Capt. Jolly.

*Infantry and Rifles.*

The 63rd “ Halifax Rifles,” Lieut. Col. Mackintosh, 6 Companies.  
 The 66th “ Princess Louise Fusiliers,” Lieut.-Col. Bremner, 8 Companies.

## 5. The following Corps did not perform drill :—

## Authorized to drill :—

The Halifax Field Battery.

## Not authorized to drill :—

The King's Troop of Cavalry.  
 The 2nd Halifax Brigade, Garrison Artillery.  
 The 72nd Battalion, 6 Companies.  
 The 75th Battalion, 5 Companies.

## SPECIAL REMARKS.

The whole of the Corps as named above for Camp, assembled on the 2nd July at Pictou, where there is an excellent camping ground close to the harbour, with good bathing for the men—which is of great benefit in a sanitary point of view—and was daily taken advantage of.

The 68th, 69th and 78th Battalions are three remarkably fine Corps, well commanded and efficient. I believe they will bear favourable comparison with any of the rural Corps I have seen in other Provinces.

I noticed great improvement in the Cumberland Provisional Battalion and the “Argyle Highlanders,” the latter being composed of men of very fine physique, from Cape Breton.

Great progress was made in drill, far superior to that of last year, and highly creditable to both Officers and men.

I am glad to report the conduct of all Corps in Camp was very orderly and creditable, the men took every spare hour to perfect themselves in cleaning their accoutrements, and vied with each other who could turn out the most soldier-like; several of the C. O.'s giving prizes for the cleanest and best accoutred man on parade.

*Inspection by the Major General.*

On the 13th July the Brigade underwent a minute inspection by the Major-General Commanding, who, I am glad to say, expressed himself as being well satisfied with the Brigade and highly complimented the Force in Camp upon their clean and soldier-like turn-out.

The health of the whole Camp was very good, hardly any sickness; this was in a great degree owing to the very healthy situation of the Camp. The rations were good, and sufficient in quantity, the price being 19½ cents per man per day.

Our thanks are due to the Mayor, Corporation and inhabitants of Pictou generally, for their kindness and efforts to make the Camp agreeable to the Force.

The Pictou Garrison Battery, with its fine band, paraded and drilled with the Brigade at the Major-General's inspection; they still maintain their good name as a very fine Corps, and are well drilled. I inspected them in infantry drill a few days previous, and have to report very satisfactorily of them in every particular.

The following officers composed my Staff at the Brigade Camp, to whom I take this opportunity of expressing my thanks for their exertions in making it so successful:—

*Brigade-Major*—Lieut.-Col. MacShane, B.M., No. 9.

*Assistant Brigade-Major*—Capt. T. McKenzie, Militia Staff.

*Supply Officer*—Lieut. Fred. W. Fraser, Pictou Battery.

*Camp Quarter-Master*—Capt. Isaac Barnhill, 78th Battalion.

*Medical Officer*—Surgeon Page, 78th Battalion.

*Instructor of Musketry*—Lieut. Col. J. R. Murray, 66th P. L. Fusileers.

*Orderly Officer*—Lieut. B. Webster, 68th Battalion.

*Provost Officer*—Capt. Jacques, 72nd Battalion.

I must add to the above the name of Major Guy, the very efficient Militia Store-keeper.

*City Corps.*

I inspected the 63rd Rifles and 66th "Princess Louise Fusiliers" in the drill yard, Halifax, on the 15th inst. Both Corps turned out in good strength, and looked remarkably well with their arms, accoutrements and clothing clean and correctly put on. Their movements on parade were steady and accurate, showing that a great deal of attention had been paid to their drill. But the Drill yard is too small for a Battalion to do justice to itself in drill, and "extended order" cannot be practiced. I am in hopes that arrangements may be made for a larger drill ground, as the limited space of the present one is a serious drawback, and it is no more than their due, for me to report that the exertions of all ranks necessary to turn out two such very fine Corps as the 63rd and 66th, appear to warrant increased accommodation, not only in the Drill Yard, but also in the Drill Shed; for the Company armouries are mere cupboards, so small that they would not be permitted to be used as armouries for rural Companies, and so very inconvenient that it is not practicable to prevent losses. I am forwarding plans for new armouries, such, I trust, may receive favourable consideration.

## ARTILLERY.

This arm of the service, which appears so highly important for the defence of the Maritime Provinces, will be reported on by the Inspectors of Artillery.

I mustered the Digby Battery on the 14th instant, at the conclusion of their Annual Drill (as the Inspector of Artillery could not be present), and saw their gun practice, which was very fair. It rained so heavily I had no opportunity of seeing their movements on parade; but from the smart manner in which they worked the guns at practice, I judge they are practically efficient.

## RIFLE ASSOCIATIONS.

The Provincial Rifle Association is in active operation and doing excellent work, encouraging rifle shooting. The County Associations also are well patronized.

I have the honor to be, Sir,

Your most obedient servant,

JOHN B. TAYLOR, Lieut.-Col.,

Deputy Adjutant-General, Military District No. 9.

The Adjutant-General Militia.

## MILITARY DISTRICT No. 10.

FORT OSBORNE, WINNIPEG, 1st December, 1882.

SIR,—I have the honor to submit for the information of the Major-General Commanding, this my Annual Report upon the state of the Militia in the Military District under my command for the current year 1883-84, together with my Inspection Return (tabular form) for the same period.

The established strength of existing Corps in this District at the beginning of the present year, viz. : 1st July, 1883, was as follows :—

	Officers.	N.-O. O. & Men.	Total.
Cavalry (1 Troop).....	3	42	45
Field Artillery (1 Battery).....	6	79	85
Mounted Infantry (3 Companies).....	9	126	135
Infantry (7 Companies).....	21	294	315
	<u>39</u>	<u>541</u>	<u>580</u>
Total, all arms.....	39	541	580

The number authorized for Annual Drill was :—

In Camp, all ranks.....	85
Troops and Companies, Headquarters.....	295
Total.....	<u>380</u>

Corps which drilled in Camp :—

	No.
Winnipeg Field Battery .....	1
“ Cavalry Troops.....	1

Corps which performed Drill at Headquarters :—

St. Jean Baptiste Infantry Company... ..	1
Total .....	<u>3</u>

Corps which did not perform Drill though authorized :—

Winnipeg Infantry (Company).....	1
Kildoman do do .....	1
Emerson do do .....	1
St. Boniface do do .....	1
Total .....	<u>4</u>

Corps which were relieved from Drill :—

Prince Albert Mounted Infantry (Companies).....	2
Duke Lake do do (Company).....	1
Prince Albert Infantry do .....	1
Battleford do do .....	1
Total .....	5

As will be seen from above statement, only one Infantry Company (St. Jean Baptiste) made any attempt at drilling this year, and that, as shown by my tabular Report, with a very poor result.

*The Winnipeg Field Battery,*

Under the command of Bt.-Lieut.-Col. W. N. Kennedy, went into Camp on the 19th June last, remaining there twenty-four days, viz, until July 12th, on which day they were finally inspected by me and mustered out.

As will be seen in the column of remarks in Tabular Form, this encampment embraced two periods of annual drill, namely, that for last year as well as the present.

This long period of consecutive training had a very beneficial effect and brought the Battery into a very creditable state of efficiency, both horses and men being well up to their work before leaving Camp.

The Battery being encamped at Fort Osborne, I had every opportunity of observing their marked improvement from day to day, and I have much pleasure in testifying to the assiduity and interest shown by both Officers and men (1).

I attended the shot and shell practice of the Battery at Stony Mountain, both on the 2nd and 11th July, on each of which occasion the firing was exceedingly creditable, though, owing to the length of time the fuzes have been in store, they are much deteriorated and cannot be at all relied upon (2). This very materially interfered with the score for "burst of shell" and was consequently very discouraging to the marksmen who, in every other respect, had made such capital practice. I would strongly recommend that a fresh supply of "Time Fuzes" be forwarded here for the use of the Battery, in time for next year's practice (3) as those at present in store are only calculated to mislead, and are totally unfit for use on active service.

The Battery fired a "Royal Salute" in front of the Penitentiary on the 2nd July. The time was very good and the guns well served, there being only two available for this purpose.

Dismounting and dismantling guns and carriages, then remounting and coming into action, against time, was the principal feature of the drill at Inspection.

The Officers giving liberal prizes for this competition. it was well contested, and the time made—generally very good, the winning detachment making as good time as any on record in the Dominion. There were also prizes given on that occasion for best groomed teams, and best cleaned harness, trappings and guns, for all of which there was keen competition, attended with highly satisfactory results. Throughout the encampment the Battery behaved in an orderly and soldier-like manner, and Guards were mounted and Sentries posted with regularity, and every thing was carried out with proper discipline and in accordance with Regulations and Orders for Encampments.

During the recent elections at Rat Portage, in September last, on a duly signed requisition from the Mayor and Magistrates of that municipality, I ordered a detachment of two Officers and forty men of this Corp, accompanied by the Battery Surgeon, to proceed there in aid of the civil power, in case of their services being needed.

My order was promptly carried out, and Colonel Kennedy, who took personal command of the party, reported highly of their conduct on his return (4). Fortunately, no riot took place, but had there been any occasion to call for the active interference of the Militia, I feel confident that all would have been ready to do their duty, quite regardless of personal or political bias of any kind.

*The St. Jean Baptiste Infantry Company.*

Under the command of Capt. Thibault, was inspected by me on the 10th August, that date having been selected by himself and agreed to by me several days previously.

I was, therefore, much disappointed on arrival at the rendezvous, after a six hours' tedious journey by rail and back-board, to find only the Captain and seventeen men awaiting my arrival.

The Captain explained that the men were busy haying and harvesting, and that many of them, living long distances from Company Headquarters, were quite unable to attend for inspection.

The few men present went through the drill mentioned in my Tabular Report in a rather indifferent manner, but, on the whole, presented a passable appearance in other respects, taking into consideration the time their clothing has been in wear, and the fact, as stated by the Captain, that he had tried hard, but failed, to procure any pipe-clay for the men's belts and slings, which were consequently in a most unsightly though serviceable condition (5). The arms in the hands of the men were, however, pretty clean, as were also those in the Armory, which, as well as the great coats, and the accoutrements and clothing of the absentees, were overhauled and counted after parade, and found to be correct, with the exception of a portion of them which the Captain stated were in the hands of the absentees.

Captain Thibault is at present the only Officer in the Company, the others having resigned some time ago, and not having been since replaced.

I consider this Company situated in a far too isolated position, and the members of the Corps much too scattered to be of any practical use to the service, unless, indeed, the idea of the proposed Rural Battalion be carried out, in which case they might be stimulated to exertion by being annually brought into contact with the other Companies, or some of them, in camps of exercise.

*The Winnipeg Cavalry Troop*

Commanded by Captain Knight, performed their drill in Camp at Troop Headquarters, at their own expense for rations, preferring to drill for six consecutive days of six hours each to twelve days of three hours each (6). This was partly in consequence of the difficulty of obtaining horses at the rates allowed by Government, and also the greater facility it afforded of keeping the same horses for the whole period of the drill, with the same riders.

They went into Camp on the 7th August, and broke up after my inspection on the 13th. For particulars of movements, &c., at which, see Tabular Report.

The progress made by the Troop during their short term of encampment was marked and satisfactory, and the horses, which were of a very superior class to those usually hired out as troopers, seemed to have readily adapted themselves to the work and performed the various evolutions very fairly indeed.

The men looked smart and neat in their new uniforms, and having performed several voluntary drills previous to going into Camp, presented a very soldier-like appearance, all seeming to take much interest in attaining efficiency.

Lieuts. Disbrowe and Shelton each handled the corps in a satisfactory manner when called upon to take command.

I must, however, repeat my opinion as expressed in my last Report, that to obtain anything like permanent efficiency in Cavalry, it is essential that either the Corps be drilled annually in Camp with the same horses, so far as practicable, or far better still, that the horses should be the property of the riders, who would then

be able to turn out on all occasions of drill or service, on the same horse, and would at all times take pleasure and pride in having the best trained animal in the Troop, and lose no opportunity of imparting some instruction to him even when off duty (8).

#### *The Winnipeg Infantry Company*

Commanded by Capt. Mackeaud, did not perform drill this year for the same reason as stated in my last Annual Report.

This Company has now, by *Gazette* of the 9th ult., been absorbed into the new Corps, designated as the "90th Battalion, Winnipeg Rifles."

#### *The Kildonan Infantry Company*

Under command of Capt. Rolph, have not performed any drill for three years, having been relieved from drill for the first, but authorized to drill for the last two years of that period. In my last year's Report will also be found an explanation of this. I may also add here that Capt. Rolph's resignation is now in my hands, and another Officer is in readiness to take his place, with a new roll already filled with signatures of young men desirous of resuscitating this Company as part of the Rural Battalion of Infantry, with Headquarters at Winnipeg.

#### *The St. Boniface Infantry Company*

Has again failed to perform drill for this year, though authorized to do so.

Capt. Prudhomme, Commanding, also offers same reasons as last year, but is desirous of re-organizing as one of the Companies of the proposed Rural Battalion.

#### *The Emerson Infantry Company*

Has not drilled for three years, but could, no doubt, be also resuscitated under similar circumstances as the foregoing. Capt. Nash, who commands this Corps, is the present Mayor of Emerson, and is a very popular and thoroughly qualified Officer.

#### *The North-West Corps,*

Consisting of three Companies of Mounted Infantry and two Companies of Infantry, were relieved from drill until further orders by instructions received from the Adjutant-General, dated 10th August, 1882.

#### GENERAL REMARKS.

The formation by *Gazette* of 9th November of the 90th Battalion, Winnipeg Rifles, in accordance with the recommendation contained in my last Annual Report, has infused new life into Military circles here, and promises to engender a wholesome spirit of emulation most beneficial to the welfare of the Force. The 6 Companies of the new Battalion are already nearly filled up, and any delay in their completion is now only consequent upon the desire of the Officer in command of each to fill his ranks with the most desirable class of recruits. Nos. 1, 4, and 6 Companies are, in fact, now complete, and Nos. 2, 3 and 5 will hand in full rolls on the 3rd instant.

The Cavalry Troop has already resumed work in the shape of weekly voluntary drills at the gun sheds, and the Field Battery are also organizing like meetings at same place for a similar purpose. The new Battalion has secured the Wesley Hall (a large building) as a temporary drill shed during the winter, at which place they commence operations on the 10th instant.

With such encouraging results from the first step, would it not be highly advisable to act upon Capt. Carruther's suggestion, and organize the old outlying Companies into a Rural Infantry Battalion, with Headquarters and Staff at Winnipeg.

adding to their strength say, one Company from Portage La Prairie, and one from Brandon, both of which places are most desirous of, and have frequently applied for, permission to organize Corps for their own protection, as well as for that of the country generally (9).

I am also given to understand, on the best authority, that a fine Cavalry Troop, or Mounted Infantry Company, owning their own horses, can be easily obtained at Stony Mountain and vicinity, of which Mr. S. Bedson, Warden of the Penitentiary, would be willing to take command. Nor do I consider that such a force as that I have mentioned, or even a larger one, would be in way any disproportionate to the great interests involved in the protection of life and property in this vast and valuable country.

Bounded, as Manitoba is, upon the west by the still powerful, though yet peaceful, tribes of Indians, the tenure of whose friendship is now more than ever likely to become matter of uncertainty in the immediate future; and on the south by the disaffected tribes of Indians of the United States, from whom we are at any time liable to be obliged to defend our herds and granaries (to say nothing of our homes and families), would it not be prudent to take every precaution to fortify ourselves against possible contingencies, by taking advantage of the voluntary offers of the bone and sinew of the country to enroll themselves in the ranks of its defenders (10), and prepare themselves for this important duty, should it ever be required of them, by devoting a small portion of their leisure to the acquirement of the necessary training to fit them for this purpose.

Surely this Western District has a reasonable right to expect that the Government of Canada will deal liberally with it, and afford young men the opportunity of carrying out their most praiseworthy wishes in this respect.

In the same connection I would beg most respectfully to urge the advisability of the re-organization, or, more properly, the *organization*, of the North West Corps, which, although now more than three years enrolled, and shortly afterwards outfitted with arms, ammunition and saddlery, have never since been assembled for drill, in consequence of no uniform having, up to the present time, been furnished to them (11). These Corps are still in existence, and could readily be resuscitated by their original Commanding Officers were they to receive encouragement to do so.

The necessity for a large and centrally situated Drill Shed in the City of Winnipeg is now more than ever apparent, and I may say that the success of the new organization will greatly depend upon the early construction of such a building, as it has been my experience that, although in the first blush of Military enthusiasm both Officers and men may be ready and willing to expend their own private means on the rental of tenements required for purposes of instruction, yet continued apathy on the part of the Government, with regard to the requirements and comforts of the Corps, or a too parsimonious endeavor to avoid necessary expenditures, will eventually result in discontent and a proportionate diminution of interest in the work in hand.

#### *Magazine.*

A safe and suitable Magazine is also urgently needed in Winnipeg (12), but as recent correspondence on this subject has already fully placed my views in reference to this matter before the Major-General Commanding, I need not make further comment here.

#### *Manitoba Rifle Associations.*

There are at present two efficient Rifle Associations in this District.

1st. The Manitoba Provincial Rifle Association, for which a new range has been constructed at Stony Mountain this year, which is second to none in the Dominion.

It has cost the Association already over (\$1,000) one thousand dollars, and would have cost considerably more had it not been for the assistance kindly rendered by Mr. Bedson, Warden of the Penitentiary, who had the greater portion of the work of construction done by the convicts, at a very trifling charge against the funds of the Association.

The Annual Prize Meeting held on the 15th August, and following days, was a most successful one in every respect, the cash prizes amounting to some \$1,500, with about an equal value of prizes in kind. The attendance was larger than on any previous occasion, and a far greater number of competitors contended for the prizes (13).

2nd. The Brandon Rifle Association, which was only established last summer, also held prize matches, which were well attended. They also appear to have an excellent range which they have constructed entirely at their own expense, having received no Government aid as yet.

This Association was represented at the Provincial meeting by eight competitors, who succeeded in carrying off a fair proportion of the prizes.

They have affiliated with the Manitoba Provincial Rifle Association

I have the honor to be, Sir,  
Your obedient servant,

C. F. HOUGHTON, Lieut.-Col.  
Deputy Adjutant-General, Military District No. 10 (14).

#### NOTES BY MAJOR-GENERAL COMMANDING.

- (1) Very satisfactory.
- (2) I beg to call attention to this state of things.
- (3) Recommended.
- (4) Very satisfactory.
- (5) This appears to me to display the disadvantages of pipeclay belts.
- (6) This is in my opinion an objectionable arrangement, as not conducing towards efficiency.
- (7) Satisfactory.
- (8) I quite concur; and I question whether a Cavalry Corps would exist, the horses of which are not the property of the men.
- (9) This matter requires local knowledge.
- (10) I commend this to the consideration of Government.
- (11) I commend this to serious notice of Government.
- (12) This correspondence has been forwarded to the Minister of Militia.
- (13) Highly satisfactory.
- (14) Considering the state of the various Corps reported on in this District, it appears to me that it would be desirable that, as soon as the 93th Battalion are organized, the whole District should be seen by the General Officer Commanding.

#### MILITARY DISTRICT No. 11.

MEMO.—In consequence of the annual drill of the force in this district not being completed, the report of the Deputy Adjutant General cannot be forwarded in time for publication with the reports received from other districts, for the year ended December, 1883.

W. POWELL, Colonel,  
Adjutant-General.

1st January, 1884.

#### MILITARY DISTRICT No. 12.

DEPUTY ADJUTANT-GENERAL'S OFFICE,  
ST. JOHN, N.B., 26th November, 1883.

SIR,—I have the honor to forward, for submission to the Major-General Commanding, the Tabular Inspection Return of this District, being details of the Annual Drill.

2. the following is the established strength of the Active Militia, by arms, in the District:—

The strength of the existing Corps is:—

*Garrison Artillery.*

	Officers.	N.-C. Officers and Men.
"Prince Edward Island Provisional Brigade," (3 Batteries).....	14 .....	126

*Engineers.*

"Charlottetown," (1 Company) .....	3 .....	42
------------------------------------	---------	----

*Infantry.*

82nd Battalion (6 Companies)....	25 .....	272
"King's Co." Provisional Battalion (2 Com- panies).....	6 .....	84
"Prince Co." Provisional Battalion (2 Com- panies).....	6 .....	84

3. The number of Active Militiamen authorized for Annual Drill were:—

	Officers.	N.-C. Officers and Men.
In Camp.....	20 .....	294
At Headquarters.....	14 .....	168
	<u>34</u>	<u>462</u>

4. The Corps which performed drill in Camp were:—

*Engineers.*

The "Charlottetown" Company, Major Doherty.

*Infantry.*

82nd Battalion, Lieut.-Col. Beer, 4 Companies.  
King's County Provisional Battalion, 1 Company.  
Prince County Provisional Battalion, 1 Company.

5. Corps which did not perform Annual Drill were:—

Authorized to Drill.—Nil.

Not authorized to drill:—

*Infantry.*

82nd Battalion, No. 2 Company.  
King's County Battalion, No. 2 Company.  
Prince County Battalion, No. 2 Company.

SPECIAL REMARKS.

A Provisional Battalion Camp, under command of Major Freeland, Brigade-Major, having been authorized, it was held at Milton, near Charlottetown, from the 26th June to the 6th July, and was very well attended, it being the first Camp held on the Island for some years. I inspected it on the 4th July, and have to report in very satisfactory terms of the Camp in every particular; and I must say that much credit is due to Major Freeland, and also to Major Irving, commanding the Garrison Artillery, for the success attending their exertions, in which they were well supported by Lieut.-Col. Beer and the junior Officers. I have no doubt but that this Camp will prove to both Officers and men attending it, the great advantage which it has over the plan hitherto followed of drill at Company Headquarters; besides, it is

now acknowledged that the drill of a rural Company at its local Headquarters is practically of no value for any real service. Major Freeland informs me that "particular attention was paid in Camp to the duties of the Non-Commissioned Officers, who were required to keep correct rosters of all duty men, and who, including ration carriers and orderly men, paraded at guard mounting, when the correctness of the Orderly Sergeant's rosters was tested."

#### *Artillery.*

The progress of the Artillery in the District since Major Irving obtained command has been highly flattering to his exertions. At the last competition of the Dominion Artillery Association, No. 1 Battery of his Brigade carried off the following prizes, in competition with Artillery of the whole Dominion, viz.:—

1. Shifting Ordnance prize.
2. Governor-General's prize for general efficiency.
3. Fourth aggregate prize in competitive practice, smooth bore guns.
4. Voluntary attendance prize.
5. Three individual prizes.

And No. 3 Battery, Georgetown, carried off—

- 1st and 3rd aggregate prizes in competitive practice smooth bore guns.
2. Two individual prizes.

#### *Engineers.*

The "Charlottetown" Company is a very fine Corps. I inspected them in Camp. Major Raban, the Inspector of Engineers, also inspected them, and will report.

I am glad to be able to report that all deficiencies in arms, equipment and clothing at the Brigade Major's inspections have been replaced, and the amount charged against the "care of arms" allowance.

The Provincial Rifle Association is well managed, and much interest is taken in rifle shooting by the Corps around Charlottetown. I am glad to say that I can report a great improvement in the Active Militia of this District.

I have the honor to be, Sir,

Your most obedient servant,

JOHN B. TAYLOR, Lieut.-Col,

Deputy Adjutant-General, Military District No. 12.

The Adjutant-General of Militia,  
Ottawa.

## APPENDIX

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 1, Lieut.-Col. W. HAYES JACKSON, D. A. G.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
Brigade Staff.....		Lt.-Col. Jackson, D. A. G., London	9	7	9	7	London.....				Camp.
1st Regiment of Cavalry .....	4	Lt.-Col. J. Cole, London.									
No. 1 Company ...		Capt. Borbridge, St. Thomas.....	3	42	1	26	London.....	June 22	12	17	
No. 2 do ...		Major F. Peters, London.....	3	42	2	26	do .....	do 22	12	1	
No. 3 do ...		Major Stewart, Courtright.....	3	42	1	33	do ...	do 22	12	61	
No. 4 do ...		2nd Lieut. Wigle, Kingsville.....	3	42	1	27	do .....	do 22	12	113	
		Staff.....	6	5	4	3					
		Total .....	18	173	9	115					
											M. 20. R. Rail R. 93. Marched.

No. 3.

performed the Annual Drill for 1883-84.

[illegible]

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 1—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
London Field Battery. ....		Major J. Peters, London .....	6	74	4	67	London.....	June 22	12	Camp.	1
1st Prov. Brigade Field Artillery.	2	Lieut.-Colonel Macdonald, Guelph.									
No. 1 Battery. ....		Major Nicoll, Guelph .....	4	76	4	62	London . . . .	June 22	12		
No 2 do . . . .		Major Hood, Guelph.....	4	76	3	65	do . . . .	do 22	12	do	73
		Staff.....	4	4	3	2					73
		Total.....	12	156	10	129					
Sarnia Battery Gar. Artillery. ....		Capt Ellis, Sarnia	3	42	3	42	Sarnia.....		12	Local Headquarters.	

performed the Annual Drill for 1883-4—*Continued.*

	0 hours.	18 hours.	8 hours.	Time required to concentrate the Battalion or Corps.
		do	2½ c. per man; 29½ c. per horse.	Cost of rations per head, per diem, at encampment.
	do	do	Good	General Conduct of Corps.
	Nil.	Nil.	Nil.	If any, and what casualties.
	No.	No.	No.	Whether in possession of Band. Number of Musicians and proficiency.
	do	do	Serviceable; saddlery much worn.	General State of Clothing, Arms and Accoutrements.
Manual firing and company drill; indifferent.		do	Marching past at walk and trot; brigade drill, and general field movements; very good.	Nature of Movements at Inspection, and how performed.
do		do	So reported.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.
Not carried out.		do	At Toronto.	Number of Non-exercised Men, if any.
				Ranges.
				Battalion.
				Company.
	Sept. 26	June 30	June 30	Date of Inspection.
	Sept. 26	July 3	July 3	Date when Drill was completed.
		No. 1, 25; No. 2, 27; Staff, 5; Total, 57 horses.	29 horses.	REMARKS.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 1—Continued.			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
7th "Fusiliers."	7	Lt.-Col. Walker, London.										
No. 1 Company	...	Capt. Smith, London.	3	42	2	41	London	.....	12	Local Headquarters.		
No. 2 do	...	Major Miller, London.	3	42	2	41	do	.....	12			
No. 3 do	...	Capt. McKenzie, London.	3	42	2	40	do	.....	12			
No. 4 do	...	Capt. McBeth, London.	3	42	2	39	do	.....	12			
No. 5 do	...	Capt. Gartshone, London.	3	42	2	42	do	.....	12			
No. 6 do	...	Capt. Peel, London.	3	42	2	42	do	.....	12			
No. 7 do	...	Capt. MacRae, London.	3	42	2	42	do	.....	12			
		Staff	8	4	8	4	do	.....	12			
		Total	29	298	22	292						
22nd Battalion Oxford Rifles.	8	Lt.-Col. Cowan, Ingersoll.										
No. 1 Company	...	Capt. Macqueen, Woodstock.	3	42	3	35	London	.....	June 22 12	Camp.	17	
No. 2 do	...	Capt. Loveys, Embro.	3	42	2	24	do	.....	do 22 12		27	
No. 3 do	...	Capt. Williamson, Princeton.	3	42	2	27	do	.....	do 22 12		22	
No. 4 do	...	Capt. Hegler, Ingersoll.	3	42	3	41	do	.....	do 22 12		38	
No. 5 do	...	Capt. Bleakly, Norwich.	3	42	1	22	do	.....	do 22 12		17	
No. 6 do	...	Capt. McCleneghan, Woodstock.	3	42	2	38	do	.....	do 22 12		40	
No. 7 do	...	Capt. Clement, Woodstock.	3	42	1	21	do	.....	do 22 12		27	
No. 8 do	...	Capt. Day, Thamesford.	3	42	3	27	do	.....	do 22 12		27	
		Staff	8	5	5	5					17	
		Total	32	341	22	240						



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 1—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. O. and Men.	Officers.	N. O. and Men.						
24th Battalion, "Kent Infantry" .....	7	Lt.-Col. Baxter, Chatham.										
No.1 Company ...		Capt. Patterson, Chatham.....	3	42	2	32	London.....	June 22	12		66	
No. 2 do ...		Capt. Atkinson, Chatham. ....	3	42	2	37	do .....	do ...	12		66	
No. 3 do ...		Capt. Somerville, Ridgetown.....	3	42	1	11	do .....	do ...	12		59	
No. 4 do ...		Capt. Smith, Chatham.....	3	42	2	39	do .....	do ...	12		66	
No. 5 do ...		Lieut. Johnson, Bothwell.....	3	42	2	31	do .....	do ...	12		44	
No. 6 do ...		Capt. Denhardt, Dresden.....	3	42	3	31	do .....	do ...	12		83	
No. 7 do ...		Capt. Cheyne, Windsor.....	3	42	1	30	do .....	do ...	12		110	
		Staff.....	8	5	6	4						
		Total....	29	299	19	215						
25th Battalion, "Elgin Infantry" .....	6	Lt.-Col. O'Malley St. Thomas.										
No.1 Company ...		Capt. Graham, St. Thomas.....	3	42	3	35	London.....	June 22	12		15	
No. 2 do ...		Lieut. Wilson, Vienna.....	3	42	2	42	do .....	do ...	12		28	
No. 3 do ...		Capt. Weisbrod, Aylmer.....	3	42	2	28	do .....	do ...	12		28	
No. 4 do ...		Capt. Bradley, St. Thomas. ....	3	42	2	33	do .....	do ...	12		15	
No. 6 do ...		Capt. Lindsay, St. Thomas. ...	3	42	3	35	do .....	do ...	12		15	
No 7 do ...		Capt. Ley, Leamington.....	3	42	3	40	do .....	do ...	12		102	
		Staff.....	8	5	7	5						
		Total. ....	26	257	22	218						

performed the Annual Drill for 1883-84—*Continued.*

24 hours.		24 hours.		Time required to concentrate the Battalion or Corps.	
For men, 2½c.; horses, 2½c.	Good.	For men, 2¼c.; horses, 2¾c.	Good.	Cost of rations per head, per diem, at encampment.	
	Nil.		Nil.	General Conduct of Corps.	
Yes 18 strong. Good.		Yes; 20 strong. Good.		If any, and what casualties.	
op		Serviceable; tunics stained by knapsacks.		Whether in possession of Band. Number of Musicians and proficiency.	
op		Marching past in column and quarter column, brigade drill and file day, with firing. Fair.		General State of Clothing, Arms and Accoutrements.	
op		So reported.		Nature of Movements at Inspection, and how performed.	
op		Not completed.		Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	
				Number of Non-exercised Men, if any.	
				Ranges.	
				Battalion.	
				Company.	
				Date of Inspection.	
				Date when Drill was completed.	
					REMARKS.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 1—Continued.			Corps.		Corps.		Place.	Date	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
27th Battalion "Lambton Infantry" .....	6	Lt.-Col. Fisher, Sarnia.										
No 1 Company ...		Capt. Woodward, Petrolia .....	3	42	3	40	London .....	June 22	12 days.	In Camp.	52	Rail and boat.
No. 2 do ...		Captain Pollock, Forest .....	3	42	2	37	do .....	do 22			71	
No. 3 do ...		Captain Gattis, Widder .....	3	42	2	37	do .....	do 22			62	
No. 4 do ...		Capt. Kenward, Warwick .....	3	42	3	42	do .....	do 22			36	
No. 5 do ...		Captain Beattie, Wallaceburg ...	3	42	2	42	do .....	do 22			92	
No. 6 do ...		Captain Carrall, Watford .....	3	42	3	34	do .....	do 22			36	
		Staff .....	8	5	7	5						
		Total .....	26	257	22	237						
28th Battalion "Perth Infantry" .....	6	Lt.-Col. Scott, Stratford.										
No 1 Company ...		Capt. Burnham, Stratford .....	3	42	2	34	London .....	June 22	12 days.	In Camp.	33	Rail and wagon.
No. 2 do ...		Capt. Hamilton, Stratford .....	3	42	3	42	do .....	do 22			33	
No. 3 do ...		Captain Moscrip, St. Mary's .....	3	42	3	36	do .....	do 22			22	
No. 4 do ...		Captain Beam, St. Mary's .....	3	42	3	25	do .....	do 22			22	
No. 5 do ...		Captain Paisey, Kirkton .....	3	42	2	19	do .....	do 22			34	
No. 6 do ...		Captain Gourley, Stratford .....	3	42	2	22	do .....	do 22			33	
		Staff .....	8	5	8	.....						
		Total .....	26	257	23	178						

performed the Annual Drill for 1883-84—*Continued.*

24 hours.		24 hours.	Time required to concentrate the Battalion or Corps.	
For men, 21½c. ; horses, 28½c.	Good.	For men, 21½c. ; horses, 29½c.	Cost of rations per head, per diem, at encampment.	
	Nil.		General Conduct of Corps.	
			If any, and what casualties.	
Yes ; 27 performers ; good.		Yes ; 32 strong ; very good.	Whether in possession of Band. Number of Musicians and proficiency.	
do		Serviceable ; tunics stained by knapsacks.	General State of Clothing, Arms and Accoutrements.	
Marching past, in column and quarter column ; brigade movements and field day, with firing ; fair.		Marching past, in column and quarter column ; brigade drill and field day, with firing ; good.	Nature of Movements at Inspection, and how performed.	
do		So reported.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	
do		Not completed.	Number of Non-exercised Men, if any.	
			Ranges.	
			Battalion.	Figure of Merit.
			Company.	
			Date of Inspection.	
			Date when Drill was completed.	
			REMARKS.	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual Strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
30th Battalion Rifles.....	10	Lt.-Col. Clarke, Guelph.										
No.1 Company ...		Capt Mason, Har-riston.....	3	42	2	34	London.....	June 22	12		72	
No. 2 do ...		Lieut. Craine, Guelph.....	3	42	2	35	do .....	do 22	12		73	
No. 3 do ...		Capt. Beattie, Fergus.....	3	42	1	43	do .....	do 22	12		89	
No. 4 do ...		Capt Allen, Elora.....	3	42	2	40	do .....	do 22	12		86	
No. 5 do ...		Capt. Winfield, Mount Forest...	3	42	2	29	do .....	do 22	12		82	
No. 6 do ...		Capt. Mutrie, Eras-mosa .....	3	42	2	40	do .....	do 22	12		79	
No. 7 do ...		Capt. McDowell, Erin .....	3	42	2	41	do .....	do 22	12		109	
No. 8 do ...		Capt Moore, Pal-merston .....	3	42	3	39	do .....	do 22	12		117	
No. 9 do ...		Capt. Booth, Moorefield.....	3	42	2	32	do .....	do 22	12		75	
No 10 do ...		Capt. Whyte, Arthur.....	3	42	2	40	do .....	do 22	12		97	
		Staff.....	8	5	7	4						
		Total.....	38	425	27	377						
32nd Battalion Bruce Infantry	8	Lt.-Col. Cooper, Walkerton.										
No.1 Company ...		Capt. Stafford, Port Elgin.....	3	42	2	41	London.....	June 22	12		167	
No. 2 do ...		Capt Lascombe, Kincardine.....	3	42	3	39	do .....	do 22	12		104	
No. 3 do ...		Capt. Jeffries, Lucknow.....	3	42	3	39	do .....	do 22	12		88	
No. 4 do ...		Capt. Valentine, Paisley.....	3	42	3	41	do .....	do 22	12		155	
No. 5 do ...		Capt Moffatt, Walkerton .....	3	42	3	40	do .....	do 22	12		140	
No. 6 do ...		Capt Douglas, Tarel.....	3	42	2	42	do .....	do 22	12		183	
No. 7 do ...		Capt. Henderson, Belmore .....	3	42	2	37	do .....	do 22	12		86	
No. 8 do ...		Capt. Gillies, Teeswater.....	3	42	1	38	do .....	do 22	12		86	
		Staff.....	8	5	8	1						
		Total.....	32	341	27	318						

Camp.  
Wagon and Railway.

op



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2, Lieut.-Col. R. B. DENISON, D.A.G.M.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.						Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		
Gov'r General's Body Guard ...	2	Lieut.-Col. G. T. Denison, To- ronto.									
"A" Troop...	...	Major Denison, Toronto.....	3	42	3	40	New Fort....	June 10	12		
"B" do ...	...	Major Dunn, To- ronto.....	3	42	2	42	do ....	do 10	12		
		Staff.....	3	.....	3	.....					
		Total .....	9	84	8	82					
2nd Regiment Cavalry .....	8	Lt.-Col. Gregory, St. Catharines.									
No. 1 Troop ...	...	Capt. Gregory, St. Catharines..	3	42	2	39	Niagara .....	June 22	12	13	
No. 2 do ...	...	Capt. McConnell, Oak Ridges....	3	42	2	27	do .....	do 22	12	52	
No. 3 do ...	...	Capt. Button, Markham.....	3	42	2	36	do .....	do 22	12	57	
No. 4 do ...	...	Capt. Burch, Grimsby .....	3	42	2	33	do .....	do 22	12	30	
No. 5 do ...	...	Capt. Jones, Bur- ford .....	3	42	2	30	do .....	do 22	12	100	
No. 6 do ...	...	Capt. Servos, Queenston.....	3	42	2	33	do .....	do 22	12	7	
No. 7 do ...	...	Capt. Buchner, Welland.....	3	42	2	31	do .....	do 22	12	26	
No. 8 do ...	...	Staff.....	8	.....	7	.....					
		Total .....	29	294	21	229					
Field Batteries: Toronto .....	1	Major Gray, To- ronto.....	6	79	3	64	Niagara .....	June 22	12	36	
Hamilton.....	2	Maj. Van Wagner, Hamilton.....	6	79	1	59	do .....	do 22	12	do	do
Welland . ....	3	Major King, Port Colborne.....	6	79	5	57	do .....	do 22	12	27	
		Total .....	18	237	9	180					



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2—Continued.			Establish- ment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.	
			Officers.	N.-C. O. and Men.	Officers.							N.-C. O. and Men.
Garrison Bat- teries: Collingwood.....		Lieut.-Col. Hogg, Collingwood...	3	42	3	30	Collingwood	Sept. 11	12	• Not in Camp.		
2nd Battalion ....	10	Lt.-Col. Otter, Toronto.								Not in Camp.		Nil.
No. 1 Company ...		Captain Brown, Toronto.....	3	42	2	77	Toronto .....	July	1 12			
No. 2 do ...		Captain Pellatt, Toronto.....	3	42	2	59	do .....	do	1 12			
No. 3 do ...		Capt. Wilkinson, Toronto.....	3	42	3	60	do .....	do	1 12			
No. 4 do ...		Captain Miller, Toronto.....	3	42	3	72	do .....	do	1 12			
No. 5 do ...		Capt Kersteman, Toronto.....	3	42	3	64	do .....	do	1 12			
No. 6 do ...		Capt. Hamilton, Toronto.....	3	42	3	67	do .....	do	1 12			
No. 7 do ...		Capt. Jennings, Toronto.....	3	42	3	60	do .....	do	1 12			
No. 8 do ...		Captain Sankey, Toronto.....	3	42	3	57	do .....	do	1 12			
No. 9 do ...		Captain Murray, Toronto.....	3	42	3	49	do .....	do	1 12			
No. 10 do ...		Captain Baker, Toronto.....	3	42	3	60	do .....	do	1 12			
		Staff .....	8	.....	7	.....						
		Total .....	38	420	35	625						

Nil.

performed the Annual Drill for 1883-84— *Continued.*[illegible]

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 2—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
10th Battalion ...	8	Lt.-Col. Grasett, Toronto.										
No. 1 Company		Captain Ball, Toronto.....	3	42	2	50	Toronto .....	April	5	12	Not in Camp.	Nil.
No. 2 do		Captain Spence, Toronto.....	3	42	2	50	do .....	do	5	12		
No. 3 do		Captain Caston, Toronto.....	3	42	2	53	do .....	do	5	12		
No. 4 do		Captain Mason, Toronto.....	3	42	2	51	do .....	do	5	12		
No. 5 do		Capt. Anderson, Toronto.....	3	42	2	48	do .....	do	5	12		
No. 6 do		Capt. Paterson, Toronto.....	3	42	2	43	do .....	do	5	12		
No. 7 do		Captain Bruce, Toronto.....	3	42	2	58	do .....	do	5	12		
No. 8 do		Capt. Harrison, Toronto.....	3	42	3	54	do .....	do	5	12		
		Staff .....	8	.....	8	.....						
		Total .....	32	336	25	407						
13th Battalion ...	6	Lt.-Col. Skinner, Hamilton.										
No. 1 Company		Capt. Adam, Hamilton.....	3	42	2	42	Hamilton....	July	1		Not in camp.	Nil.
No. 2 do		Capt. Barnard, Hamilton.....	3	42	2	41	do .....	do	1			
No. 3 do		Capt. Crockett, Hamilton.....	3	42	3	41	do .....	do	1			
No. 4 do		Capt. McLaren, Hamilton.....	3	42	2	41	do .....	do	1			
No. 5 do		Capt. Stoneman, Hamilton.....	3	42	2	42	do .....	do	1			
No. 6 do		Capt. Stewart, Hamilton.....	3	42	3	42	do .....	do	1			
		Staff .....	8	.....	7	.....						
		Total .....	26	252	21	249						

performed the Annual Drill for 1883-84—*Continued.*

12 hours.		12 hours.		Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.		General Conduct of Corps.		If any, and what casualties.		Whether in possession of Band. Number of Musicians and proficiency.		General State of Clothing, Arms and Accoutrements.		Nature of Movements at Inspection, and how performed.		Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.		Number of Non-exercised Men, if any.		Ranges.		Figure of Merit.		Battalion.		Company.		Date of Inspection.		Date when Drill was completed.		REMARKS.	
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil.		Yes; 32 very good.		Good.		Manual and firing exercises, and Battalion movements.		So reported.																				Inspected by Maj.-Gen. Luard, Command'g the Militia.			
Good.		Good.		Good.		Nil.		Nil.		Yes; 36; very good.		Good.		Marching past; battalion and brigade movements.		So reported.		200, 400 and 500 yards.														Inspected by Maj.-Gen. Luard, commanding the Militia.			
Nil.		Nil.		Nil																															

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 2—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
19th Battalion ...	6	Lt Col. McDonald, St. Catharines.										
No. 1 Company ...		Capt. Dorrity, Niagara. ....	3	42	3	29	Niagara .....	June 22	12 days.	Camp.	...	Wagon.
No. 2 do ...		Capt. Day, St. Catharines .....	3	42	2	33	do .....	do 22			13	
No. 3 do ...		Capt. Moors, St. Catharines .....	3	42	3	31	do .....	do 22			13	
No. 4 do ...		Capt. Vosburg, Beamsville .....	3	42	1	24	do .....	do 22			25	
No. 5 do ...		Capt. Garson, St. Catharines .....	3	42	1	29	do .....	do 22			13	
No. 6 do ...		Capt. Hiscott, Virgil .....	3	42	2	31	do .....	do 22			5	
		Staff .....	8	.....	7	.....						
		Total .....	26	252	19	177						
20th Battalion ...	7	Lt.-Col. Allan, Halton.										
No. 1 Company ...		Capt. Fox, Oakville .....	3	42	2	31	Niagara .....	June 22	12 days.	Camp.	60	Steamer and Railway.
No. 2 do ...		Capt. Appelbe, Stewarstown .....	3	42	2	28	do .....	do 22			67	
No. 3 do ...		Capt. Goodwillie, Georgetown .....	3	42	1	19	do .....	do 22			67	
No. 4 do ...		Capt. Currie, Norval .....	3	42	.....	.....	do .....	do 22			...	
No. 5 do ...		Capt. Breckon, Burlington .....	3	42	2	21	do .....	do 22			72	
No. 6 do ...		Lieut. Shultz, Aceton .....	3	42	2	23	do .....	do 22			73	
No. 7 do ...		Capt. Panton, Milton .....	3	42	2	27	do .....	do 22			68	
		Staff .....	8	...	8	.....						
		Total .....	29	294	19	149						

performed the Annual Drill for 1883-4—*Continued.*

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.		General Conduct of Corps.		If any, and what casualties.		Whether in possession of Band. Number of Musicians and proficiency.		General State of Clothing, Arms and Accoutrements.		Nature of Movements at Inspection, and how performed.		Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.		Number of Non-exercised Men, if any.		Ranges.		Figure of Merit.		Battalion.		Company.		Date of Inspection.		Date when Drill was completed.		REMARKS.	
24 hours.	24 hours.	20-09 cents.	Good.	Nil.	Yes; 25 good.	Good.	Marching past; battalion and brigade movements.		So reported.	200, 400 and 500 yards.	19-34	17-91	June 30	July 3	Inspected by Maj.-General Luard, Command'g the Militia.																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-pipes.	Good.	do	do	do	do	do	200, 400 and 500 yards.	26-99	35-66	June 30	July 3	do																
24-09 cents.	Good.	Nil.	Yes; 4 bag-p																												

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual Strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance, the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-O. O. and Men.	Officers.	N.-O. O. and Men.						
31st Battalion....	7	Lt.-Col. Brodie, Owen Sound.										
No. 1 Company ...		Capt. Spencer, Owen Sound....	3	42	2	42	Niagara .....	June 22	12	Camp.	156	Steamer, railway and wagon.
No. 2 do ...		Capt. McGee, Meaford.....	3	42	3	28	do .....	do 22	12		155	
No. 3 do ...		Capt. Telford, Leith .....	3	42	1	40	do .....	do 22	12		153	
No. 4 do ...		Capt. Moodie, Durham .....	3	42	1	37	do .....	do 22	12		138	
No. 5 do ...		Capt. McDonald, Chatsworth....	3	42	3	36	do .....	do 22	12		146	
No. 6 do ...		Lt. Field, Flesher-ton .....	3	42	1	42	do .....	do 22	12		122	
No. 7 do ...		Capt. Rorke, Clarksburg....	3	42	3	34	do .....	do 22	12		148	
		Staff .....	8	.....	4	.....						
		Total .....	29	294	18	259						
35th Battalion ...	10	Lt.-Col. O'Brien, Barrie.										
No. 1 Company ...		Capt. Rogers, Barrie .....	3	42	2	42	Niagara .....	June 22	12	do	100	Steamer and railway.
No. 2 do ...		Capt. Campbell, Collingwood ...	3	42	1	17	do .....	do 22	12		130	
No. 3 do ...		Capt. Cook, Cookstown....	3	42	1	32	do .....	do 22	12		86	
No. 4 do ...		Capt. Ward, Vesp-ra .....	3	42	2	33	do .....	do 22	12		100	
No. 5 do ...		Capt. Powell, Barrie .....	3	42	2	38	do .....	do 22	12		100	
No. 6 do ...		Capt. Rankin, Ivy .....	3	42	3	33	do .....	do 22	12		93	
No. 7 do ...		Lieut. O'Dell, Orillia .....	3	42	2	41	do .....	do 22	12		130	
No. 8 do ...		Capt. Scott, Bond Head .....	3	42	1	33	do .....	do 22	12		100	
No. 9 do ...		Capt. McLaren, Alliston .....	3	42	2	29	do .....	do 22	12		86	
No. 10 do ...		Capt. Handley, Penetang .....	3	42	2	42	do .....	do 22	12		120	
		Staff .....	8	.....	6	.....						
		Total .....	38	420	24	340						

Camp.

Steamer, railway and wagon.

do

Steamer and railway.

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Num- of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.	Date of Inspection.	Date when Drill was completed.	REMARKS.
24 hours.	20-09c.	Good.	Nil.	Yes; 21; good.	Good.	Marching past; battalion and brigade movements.	So reported.	200, 400 and 500 yards.	17-23	10-00	June 30	July 3	Inspected by Maj.- General Luard, Comm'ding the Militia.			
do	do	Good.	Nil.	Yes; 22; good.	do	do	do	200, 400 and 500 yards.	16-19	12-23	June 30	July 3	do			
										16-00	do 30	do 3				
										20-20	do 30	do 3				
										18-70	do 30	do 3				
										11-94	do 30	do 3				
										17-53	do 30	do 3				
										13-19	do 30	do 3				
										20-20	do 30	do 3				
										15-42	do 30	do 3				
										12-22	do 30	do 3				

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 2—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
37th Battalion....	7	Lt.-Col. Davis, York.										
No. 1 Company ...		Capt. William-son, York.....	3	42	3	39	Niagara .....	June 22	12	Camp.	78	Railway and wagon.
No. 3 do ...		Capt. Nellis, Caledonia.....	3	42	3	39	do .....	do 22	12		72	
No. 4 do ...		Capt. Griffith, Hagersville....	3	42	2	34	do .....	do 22	12		81	
No. 5 do ...		Capt. Ryan, Hallsville.....	3	42	3	27	do .....	do 22	12		84	
No. 6 do ...		Capt. Goodwin, Chearside.....	3	42	2	23	do .....	do 22	12		90	
No. 7 do ...		Capt. Sawle, Caledonia.....	3	42	2	33	do .....	do 22	12		72	
No. 8 do ...		Capt. Musson, Cayuga.....	3	42	1	29	do .....	do 22	12		60	
		Staff.....	8	.....	7	.....						
		Total .....	29	294	23	224						
38th Battalion...	6	Lt.-Col. Jones, Brantford.										
No. 1 Company ...		Lieut. Petman, Brantford.....	3	42	2	41	Brantford ...	Oct. 4	12	Not in Camp.		
No. 2 do ...		Capt. Smart, Brantford.....	3	42	3	42	do ...	do 4	12			
No. 3 do ...		Capt. Young, Brantford.....	3	42	3	42	do ...	do 4	12			
No. 4 do ...		Capt. Rothwell, Brantford.....	3	42	3	44	do ...	do 4	12			
No. 5 do ...		Capt. S. W. McMichael, Brantford.....	3	42	3	42	do ...	do 4	12			
No. 6 do ...		Capt. G. H. McMichael, Brantford.....	3	42	3	44	do ...	do 4	12			
		Staff.....	8	.....	7	.....						
		Total.....	26	252	24	255						

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
									Battalion.	Company.			
24 hours.	20 09c.	Good.	Nil.	Yes; fire and drum; 18; good.	Good.	Marching past; battalion and brigade movements.	So reported.	200, 400 and 500 yards.	21-33	23-33	June 30	July 3	Inspected by Maj.-General Luard, Commandi'g the Militia.
									20 60	do 30	do 30	do 3	
									24-59	do 30	do 30	do 3	
									21-63	do 30	do 30	do 3	
									24-06	do 30	do 30	do 3	
									20-80	do 30	do 30	do 3	
									12-81	do 30	do 30	do 3	
													Inspected by Lt.-Col. Denison, D.A.G.
		Good.	Nil.	Yes; 25; very good.	do	Manual and firing exercises; battalion movements.	do	200, 400 and 500 yards.	29-84	26-37	Nov. 8	Nov. 8	
									31-08	do 8	do 8	do 8	
									19-44	do 8	do 8	do 8	
									30-41	do 8	do 8	do 8	
									34-44	do 8	do 8	do 8	
									37-33	do 8	do 8	do 8	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2—Continued.			Establish- ment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date.	Number of days drill performed.		
<b>39th Battalion...</b>	8	Lt.-Col. Mabee, Simcoe.									
No. 1 Company ...		Capt. Ryerson, Simcoe.....	3	42	3	41	Niagara .....	June 22	12	90	Camp. Railway.
No. 2 do ...		Capt. Charters, Villa Nova.....	3	42	1	32	do .....	do 22	12	90	
No. 3 do ...		Capt. Price, Port Rowan.....	3	42	2	25	do .....	do 22	12	90	
No. 4 do ...		Capt. Morgan, Walshingham ..	3	42	3	34	do .....	do 22	12	90	
No. 5 do ...		Capt. Yerks, Waterford. . .	3	42	3	27	do .....	do 22	12	90	
No. 6 do ...		Capt. Wilson, Simcoe.....	3	42	2	34	do .....	do 22	12	90	
No. 7 do ...		Capt. Ansley, Port Dover.....	3	42	3	21	do .....	do 22	12	100	
No. 8 do ...		Capt. Snider, Fredericksburg	3	42	3	26	do .....	do 22	12	100	
		Staff .....	8		6						
		Total.....	32	336	26	240					
<b>44th Battalion ...</b>	8	Lt.-Col. Morin, Clifton.									
No 1 Company ...		Captain Bender, Drummondville	3	42	2	28	Niagara .....	June 22	12	14	In Camp. Railway.
No. 2 do ...		Captain James, Thorold.....	3	42	2	32	do .....	do 22	12	14	
No. 3 do ...		Capt. Greenwood, Chippewa .....	3	42	2	20	do .....	do 22	12	17	
No. 4 do ...		Lt. Cruikshank, Fort Erie.....	3	42	2	24	do .....	do 22	12	35	
No. 5 do ...		Capt. Raymond, Welland .....	3	42	1	29	do .....	do 22	12	30	
No. 6 do ...		Capt Tattersall, Clifton.....	3	42			do .....	do 22	12		
No. 7 do ...		Captain Clark, Stevensville....	3	42	1	26	do .....	do 22	12	40	
No. 8 do ...		Captain Barwell, Fenwick .....	3	42	2	26	do .....	do 22	12	50	
		Staff .....	8		6						
		Total.....	32	336	18	185					

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.		
24 hours.	20-09c.	Good.	Nil.	Yes; 20; very good.	Good.	Marching past; battalion and brigade movements.	So reported.	Number of Non-exercised Men, if any.	Ranges.				Figure of Merit.	
													Battalion.	Company.
24 hours.	20-09 cents.	Good.	Nil.	Yes; 24; good.	do	Marching past, battalion and brigade movements.	do	200, 400 and 500 yards.	14-09	13-57	June 30	July 3	Inspected by Maj.-Gen. Luard, Commanding the Militia.	
										22-81	do 30	do 3		
										19-00	do 30	do 3		
										11 63	do 30	do 3		
										8-56	do 30	do 3		
										11-35	do 30	do 3		
										16-00	do 30	do 3		
										12-06	do 30	do 3		
24 hours.	20-09 cents.	Good.	Nil.	Yes; 24; good.	do	Marching past, battalion and brigade movements.	do	200, 400 and 500 yards.	15-08	23-21	June 30	July 3	Inspected by Maj.-Gen. Luard, commanding the Militia.	
										8-16	do 30	do 3		
										18-85	do 30	do 3		
										10-53	do 30	do 3		
										15-93	do 30	do 3		
										.....	do 30	do 3		
										19-21	do 30	do 3		
										11-12	do 30	do 3		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2—Continued.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.						
Demi Battery ....		Major Wilson, Saulte Ste. Marie	1	21	1	21	Saulte Ste. Marie. ....	12	Not in Camp.	Nil.	
Infantry Co. ....		Lt. Towers, Saulte Ste. Marie .....	1	34	1	34	do ... ..	12			
		Total .....	2	55	2	55					
Brigade Staff. ....		.....			9	7					
		Grand total...	398	4,198	304	3,693					

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act	Target Practice.			Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
									Battalion.	Company.			
12 hours.		Good.	Nil.	Yes ; 12 ; fair.	Good.		So reported.				Oct. 15		Inspected by Lt.-Col. Denison, D.A.G.
											do 15		

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3, Lient.-Col. H. V. VILLIERS, D. A. G. M.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
57th Battalion, Peterboro' Ran- gers .....	6	Lt.-Col. J. Z. Ro- gers, Peterboro'									
No. 1 Company ...		Capt. Edwards, Peterboro' .....	3	42	3	34	Cobourg.....	Sept. 11	12	39	
No. 2 do ...		Capt. Langford, Peterboro' .....	3	42	2	34	do .....	do 11	12	39	
No. 3 do ...		Lieut. Rogers, Ashburnham...	3	42	1	34	do .....	do 11	12	39	
No. 4 do ...		Capt. Birdsall, Keene .....	3	42	2	30	do .....	do 11	12	44	
No. 5 do ...		Capt. Burke, Nor- wood .....	3	42	2	29	do .....	do 11	12	72	
No. 6 do ...		Capt. Howard, Hastings .....	3	42	1	20	do .....	do 11	12	57	
		Staff .....	8	.....	5	.....					
		Total .....	26	252	16	181					
47th Battalion, Frontenac .....	8	Lt.-Col. C. A. Kirkpatrick, Kingston.									
No. 1 Company ...		Capt. Hewton, Storrington.....	3	42	2	32	Cobourg. ....	Sept. 11	12	106	
No. 2 do ...		Capt. Healy, In- verary .....	3	42	2	32	do .....	do 11	12	104	
No. 3 do ...		Capt. Spooner, Elginburg .....	3	42	2	42	do .....	do 11	12	106	
No. 4 do ...		Capt. Kelley, Portsmouth .....	3	42	2	31	do .....	do 11	12	92	
No. 5 do ...		Capt. Radford, Barreefield .....	3	42	2	41	do .....	do 11	12	92	
No. 7 do ...		Capt. Joiner, Har- rowsmiths .....	3	42	2	35	do .....	do 11	12	108	
No. 8 do ...		Capt. Cox, Tam- worth .....	3	42	2	41	do .....	do 11	12	136	
No. 10 do ...		Capt. Maybee, Ernestown .....	3	42	3	33	do .....	do 11	12	104	
		Staff .....	8	.....	7	.....					
		Total .....	32	336	24	287					

performed the Annual Drill for 1883-84—Continued.

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.		
48 hours.	24 hours.								Number of Non-exercised Men, if any.	Ranges.				Figure of Merit.	
														Battalion.	Company.
18½c.	19½c.	Good.	None.	Yes; 20 performers.	Good.	Marched past and brigade field movements under Major General Luard.	So reported.	None.	200, 400 and 500 yards.	16·02	11·40	Sept. 20	Sept. 22	Inspected by Maj.-General Luard.	
Good.	Good.	None.								12·50	do 20	do 22			
						14·00	do 20	do 22							
						16·34	do 20	do 22							
						24·86	do 20	do 22							
						17·06	do 20	do 22							
18½c.	19½c.	Good.	None.	Yes; 15 performers.	Good.					200, 400 and 500 yards.	27·44	23·14	Sept. 20	Sept. 22	do
Good.	Good.	None.									28·96	do 20	do 22		
						28·07	do 20	do 22							
						28·50	do 20	do 22							
						22·50	do 20	do 22							
						29·44	do 20	do 22							
						35·04	do 20	do 22							
						23·90	do 20	do 22							

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
49th Battalion, Hastings Rifles	6	Lt.-Col. J. Brown, Stirling.									
No. 1 Company	...	Capt. Harrison, Belleville.	3	42	2	37	Cobourg.	Sept. 11	12	44	In camp at Cobourg. Wagon and Rail.
No. 2 do	...	Capt. Fidler, Sterling.	3	42	3	25	do	do	11	64	
No. 3 do	...	Capt. Graham, Sydney.	3	42	2	28	do	do	11	54	
No. 4 do	...	Capt. Volume, Madoc.	3	42	3	42	do	do	11	74	
No. 5 do	...	Capt. Lenox, Tynanaga.	3	42	2	30	do	do	11	56	
No. 6 do	...	Capt. Orr, Trenton.	3	42	2	40	do	do	11	32	
		Staff.	8		8						
		Total.	26	252	22	202					
40th Battalion, Northumberl'd	8	Lieut.-Col. Wm. Smith, Cobourg									
No. 1 Company	...	BtLt-Cl Graveley Cobourg.	3	42	2	39	Cobourg	Sept. 11	12		do Boat, railway and wagon.
No. 2 do	...	Capt. Guillett, Cobourg.	3	42	2	39	do	do	11		
No. 3 do	...	Cpt. Bonnycastle, Campbellford.	3	42	2	24	do	do	11	48	
No. 4 do	...	Captain Butler, Brighton.	3	42	1	30	do	do	11	24	
No. 6 do	...	Lieut. McDonald, Grafton.	3	42	2	30	do	do	11	8	
No. 7 do	...	Capt. G. Duncan, Colborne.	3	42	1	26	do	do	11	15	
No. 8 do	...	Capt. W. Duncan, Castleton.	3	42	2	29	do	do	11	32	
No. 9 do	...	Capt. Hurlbutt, Warkworth.	3	42	2	33	do	do	11	32	
		Staff.	8		7	5					
		Total.	32	336	21	255					

performed the Annual Drill for 1883-84— *Continued.*[illegible]



performed the Annual Drill for 1883-84—Continued.

12 hours.	24 hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.	Date of Inspection.	Date when Drill was completed.	REMARKS.					
Men rationed themselves.	19½c.	Good.	None.	Yes; 20; good.	Good.	Marching past and brigade field movements, under Major-General Luard.	So reported.	None.	200, 400 and 500 yards.	16·81	18·12	18·37	14·15	11·50	16·65	22·10	Sept. 20	Sept. 22	Inspected by Maj.-General Luard.	
Men rationed themselves.	Good.	None.	Yes; 26 performers; good.	Very good.	Marched past in column and quarter column; battalion field movements and skirmishing; well performed.	So reported.	No target practice returns received.												Inspected by Lt.-Colonel Villers D.A.G.	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3—Continued.			Establishment.		Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, at mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - O. O. and Men.	Officers.	N. - O. O. and Men.						
15th Battalion—Argyle Light Infantry.....	6	Lieut.-Col. S. S. Lazier, Belleville								Performed drill in the evenings on the cricket ground.		
No. 1 Company ...		Capt. Balkwell, Belleville.....	3	42	3	48	Belleville....	Sept.....	12			
No. 2 do ...		Capt. Lazier, Belleville.....	3	42	2	38	do .....	do .....	12			
No. 3 do ...		Capt. Henderson, Belleville.....	3	42	3	38	do .....	do .....	12			
No. 4 do ...		Capt. Simpson, Belleville.....	3	42	2	40	do .....	do .....	12			
No. 5 do ...		Capt. Forin, Belleville .....	3	42	3	42	do .....	do .....	12			
No. 6 do ...		Capt. Walmsley, Belleville.....	3	42	3	37	do .....	do .....	12			
		Staff .....	8	.....	8	3						
		Total .....	26	252	24	248						
3rd Provisional Regiment of Cavalry.....	4	Lt.-Col. D. A. Boulton, Cobourg.								In Camp at Cobourg.		
No. 1 Troop....		Captain Reagan, Cobourg.....	3	42	2	31	Cobourg.....	Sept. 11	12			
No. 2 do .....		Captain Weller, Cobourg.....	3	42	2	35	do ....	do 11	12			
No. 3 do .....		Captain Rogers, Peterboro' .....	3	42	2	30	do ....	do 11	12			
		Staff .....	7	.....	7	.....					31	Marched.
		Total .....	16	126	13	96						

performed the Annual Drill for 1883-84—*Continued.*

24 hours.	12 hours.	Time required to concentrate the Battalion or Corps.
19½ cents.	Men rationed themselves.	Cost of rations per head, per diem, at encampment.
Good.	Good.	General Conduct of Corps.
None.	None.	If any, and what casualties.
No.	Yes; 24; good.	Whether in possession of Band, Number of Musicians and proficiency.
Clothing, arms and accoutrements, good.	Very good.	General State of Clothing, Arms and Accoutrements.
Marched past, and brigade field movements under Major-General Luard.	Marched past in column and quarter column; battalion field movements and skirmishing.	Nature of Movements at Inspection, and how performed.
So reported.	So reported.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.
No target practice performed.	No target practice performed.	Number of Non-exercised Men, if any.
		Ranges.
		Battalion.
		Company.
		Figure of Merit.
Sept. 20	Oct. 26	Date of Inspection.
do 20	do 26	Date when Drill was completed.
do 20	do 26	
Sept. 22	Oct. 26	
do 22	do 26	
do 22	do 26	
Inspected by Maj.-General Luard.	Inspected by Lt.-Colonel Villiers, D.A.G.	REMARKS.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3—Continued.			Establishment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.					N.-C. O. and Men.	
Kingston Field Battery .....	1	Captain Wilmot, Kingston.....	6	74	5	32	Cobourg ....	Sept. 11 12	In Camp at Cobourg.	92	Rail.
Durham Field Battery .....	1	Major McLean, Port Hope.....	6	74	4	63	Cobourg ....	Sept. 11 12	do	7	Marched.

	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act	Number of Non-exercised Men, if any. Ranges.	Figure of Merit.  Battalion.  Company.	Date of Inspection.	Date when Drill was completed.	REMARKS.
24 hours.	do	19½ cents.	Good.	None.	No.	Good; except great coats, very bad.	See report of Inspector of Artillery.	So reported.			Sept. 20	Sept. 22	Inspected by Maj.-General Luard.
	Good		None.								Sept. 20	Sept. 22	do

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 4, Lieut.-Col. T. BACON, Acting D. A. G. M.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.						Miles.	Mode.	
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.			
Princess Louise Dra g o n Guards.....	1	Captain Stewart, Ottawa .....	3	35	2	30	Brockville...	June 25	12	In camp.	75	Railway.
Prescott Troop of Cavalry.....	1	Captain Raney, Prescott .....	3	35	1	34	Brockville...	June 25	12	do	15	Marched.
Field Battery of Artillery .....	1	Major Stewart, Ottawa .....	6	75	5	61						

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act	Target Practice.			Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
									Battalion.	Company.			
6 hours.	1 day.	6 hours.											
do	Men, 17 cents; horses, 34 cents.	Very good.	Very good.	Good order.		Marching past and ordinary movements of a field day; well done.	Yes.					July 6	Inspected by Maj.-General commanding.
Very good.	Very good.	None.	None.	do	do	do	do	2				July 6	Inspected by Maj.-General commanding. Best shot in Troop Segeant Hutton, 51.
None.	None.							200, 300 and 400 yards.		22:45			
Tunics worn out.												July 6	Inspected by Maj.-General commanding, and Asst. Inspector of Artillery.
Field artillery drill, field movements, marching past; reported on by the Inspector of Artillery.													
do													

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 4—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date	Number of days drill performed.		
Field Battery of Artillery .....	1	Major McKenzie, Gananoque.....	6	75	5	65					
Gov.-General's Foot Guards...	6	Lieut.-Col. Ross, Ottawa .....									
Company A...		Captain Todd, Ottawa .....	3	42	2	32	Ottawa....	Aug. 3	12	Headquarters.	
do B...		Captain Toller, Ottawa .....	3	42	1	42					
do C...		Captain Aumond, Ottawa .....	3	42	2	38					
do D...		B. M. Weatherley, Ottawa .....	3	42	1	32					
do E...		Captain White, Ottawa .....	3	42	1	32					
do F...		Captain Lee, Ottawa .....	3	42	2	42					
		Staff.....	8	.....	5	.....					
		Total.....	26	252	14	218					

performed the Annual Drill for 1883-4—*Continued.*

Time required to concentrate the Battalion or Corps.	
Cost of rations per head, per diem, at encampment.	General Conduct of Corps.
If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.
General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.
Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.
Ranges.	Battalion.
	Company.
Date of Inspection.	Date when Drill was completed.
REMARKS.	
6 hours.	Men, 17 cents; horses, 34 cents. Very good. None.
Brass and reed band, 28 performers; very efficient.	Brass band, 15 performers; good.
In excellent order.	Good order.
Manual and firing exercises, marching past, and the ordinary movements of a field day, including the attack; all of which were very well done.	Field artillery drill, field movements, marching past; reported on by the Inspector of Artillery.
do	Yes.
Aug. 3	Inspected by Brig.-Major.
Aug. 3	Inspected by Maj.-General, commanding, and Asst. Inspector of Artillery.
July 6	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 4—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
41st Battalion.....	6	Lieut.-Col. Cole, Brockville.										
No. 3 Company ...		Capt. Day, Plum Hollow .....	3	42	1	24	Brockville...	June 25	12	Camp	17	W.
No. 5 do ...		Captain Teskey, Carleton Place.	3	42	3	28	do ...	do 25	12	do ...	46	Rail
No. 6 do ...		Captain Garvin, Munster.....	3	42	2	18	do ...	do 25	12	do ...	51	do
		Staff .....	8	.....	4	4						
		Total.....	17	126	10	74						
42nd Battalion...	6	Lt.-Col. Buell, Brockville.										
No. 1 Company ...		Capt. Williams, Almonte .....	3	42	2	35	Brockville...	June 25	12	Camp	52	Rail
No. 2 do ...		Capt. Sparham, Brockville .....	3	42	2	41	do ...	do 25	12	do ...	24	M'd
No. 3 do ...		Capt. Matheson, Perth .....	3	42	2	38	do ...	do 25	12	do ...	40	Rail
No. 4 do ...		Captain Cornett, Lansdowne .....	3	42	3	32	do ...	do 25	12	do ...	22	do
No. 5 do ...		Capt. Caldwell, Lanark .....	3	42	2	38	do ...	do 25	12	do {	12	W.
No. 6 do ...		Capt. Hollingsworth, Pembroke .....	3	42	3	40	do ...	do 25	12	do {	40	Rail
		Staff .....	8	.....	7	5					122	do
		Total.....	26	252	21	229						

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.												
Cost of rations per head, per diem, at encampment.												
General Conduct of Corps.												
If any, and what casualties.												
Whether in possession of Band. Number of Musicians and proficiency.												
General State of Clothing, Arms and Accoutrements.												
Nature of Movements at Inspection, and how performed.												
Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.												
Number of Non-exercised Men, if any.												
Ranges.												
Battalion.												
Company.												
Figure of Merit.												
Date of Inspection.												
Date when Drill was completed.												
REMARKS.												

1 day.												
Mens' rations, 17 cents; horses, 34 cents per diem.												
Excellent.												
None.												
Yes, but not in camp; 15 performers.												
Arms and accoutrements in good order; clothing the same.												
Manual and firing exercises, marching past, and ordinary movements of a field day.												
Yes.												
6												
4												
2												
5 rounds at 200 and 10 rounds at 400 yards.												
17-05												
15-11												
July												
3												
July												
6												
21-29												
do												
3												
do												
6												
14-75												
do												
3												
do												
6												
Inspected by Maj.-General commanding.												
Best shots:												
Sgt. Gainford, 37.												
Sgt. Ferguson, 43.												
Sgt. Tubman, 45.												

1 day.												
Mens' rations, 17 cents; horses, 34 cents per diem.												
Excellent.												
None.												
Brass band, 16 performers; very good.												
Arms and accoutrements in good order; clothing the same.												
Manual and firing exercises, marching past, and ordinary movements of a field day.												
Yes.												
2												
6												
5												
1												
5												
5 rounds at 200 and 10 rounds at 400 yards.												
18-07												
15-59												
July												
3												
July												
6												
15-86												
do												
3												
do												
6												
14-26												
do												
3												
do												
6												
26-78												
do												
3												
do												
6												
19-17												
do												
3												
do												
6												
16-78												
do												
3												
do												
6												
Inspected by Maj.-General commanding.												
Best shots:												
Pte. D. Campbell, 44.												
Pte. D. McKenzie, 32.												
Pte. Wm. Wodden, 36.												
Pte. Wm. Heaslip, 56.												
Pte. S. McDonald, 39.												
Corpl. L. Stoquay, 46.												

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection		Muster.				Whether in Camp or otherwise.		Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 4—Continued.			Corps.		Corps.									
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		Miles.	Mode.		
43rd Battalion ...	6	Lt.-Col. White, Ottawa.												
No. 1 Company ...		Captain Lang, Ottawa.	3	42	2	39	Brockville...	June 25	12	Camp	75	Rail		
No. 3 do ...		Captain Wright, Wakefield.	3	42	2	30	do ...	do 25	12	do	25 W. 75 Rail			
No. 4 do ...		Captain Grant, Vernon.	3	42	2	38	do ...	do 25	12	do	10 W. 42 Rail			
No. 5 do ...		Captain Towsey, Eardley.	3	42	2	30	do ...	do 25	12	do	15 Str. 82 Rail			
No. 6 do ...		Cap. Chamberlain, Kazabazua.	3	42	2	42	do ...	do 25	12	do	50 W. 75 Rail			
		Staff .....	8		6	5								
		Total .....	23	210	16	184								
56th Battalion....	7	Lt.-Col. Campbell, Prescott.												
No. 1 Company. ...		Captain Adams, Prescott.	3	42	2	40	Brockville...	June 25	12	Camp	15	Str.		
No. 2 do ...		Capt. Dawson, Cardinal.	3	42	1	28	do ...	do 25	12	do	16 do 12 W.			
No. 3 do ...		Capt. Kidd, Burritt's Rapids.	3	42	3	19	do ...	do 25	12	do	22 Rail 15 Str.			
No. 4 do ...		Capt. Chambers, Kemptville.	3	42	2	24	do ...	do 25	12	do	22 Rail 15 Str.			
No. 5 do ...		Bt.-Mj. Checkley, N. Augusta.	4	42	2	23	do ...	do 25	12	do	5 W. 10 Rail			
No. 6 do ...		Captain Stitt, Spencerville.	3	42	3	27	do ...	do 25	12	do	9 Rail 15 Str.			
No. 7 do ...		Capt. Morgan, Metcalfe.	3	42	3	22	do ...	do 25	12	do	10 W. 31 Rail 15 Str.			
		Staff .....	8		6	5								
		Total .....	29	294	22	188								

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.												
Cost of rations per head, per diem, at encampment.												
General Conduct of Corps.												
If any, and what casualties.												
Whether in possession of Band. Number of Musicians and proficiency.												
General State of Clothing, Arms and Accoutrements.												
Nature of Movements at Inspection, and how performed.												
Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act.												
Number of Non-exercised Men, if any.												
Ranges.												
Figure of Merit.												
Battalion.												
Company.												
Date of Inspection.												
Date when Drill was completed.												
REMARKS.												

1 day.	Mens' rations, 17 cents; horses, 34 cents per diem.											
do												
Good.												
None.												
Brass band; 16 performers; fair state of efficiency.	Brass band, 24 performers; very good.											
Some uniforms worn out; arms and accoutrements in good order.	In good order.											
do	Manual and firing exercises, marching past, and ordinary movements of a field day.											
do	Yes.											
2	5 rounds at 200 and 10 rounds at 400 yards.	2										
5 rounds at 200 and 10 rounds at 400 yards.												

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 4—Continued.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		
59th Battalion...	7	Lt.-Col. Bergin, Cornwall.									
No 1 Company. ...		Captain Milden, Cornwall.....	3	42	3	37	Brockville...	June 25	12		58
No. 2 do ...		Captain Smyth, Cornwall.....	3	42	2	37	do ...	do 25	12		58
No. 3 do ...		Captain Davey, Cornwall.....	3	42	3	34	do ...	do 25	12		58
No. 5 do ...		Captain Light, Farmer's Point.	3	42	3	39	do ...	do 25	12	Camp.	42
No. 6 do ...		Captain Smart, Lunenburg.....	3	42	2	41	do ...	do 25	12		48
No. 7 do ...		Lieut. McCuaig, Athol.....	3	42	2	42	do ...	do 25	12		118
		Staff.....	8	.....	7	6					
		Total.....	26	252	22	236					

Railway.

performed the Annual Drill for 1883-84— *Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.			
							Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.						
									Battalion.				Company.		
1 day.	Men's rations, 17 cents; horses rations, 34 cents per diem.	Good.	None.	Brass band; 15 performers; fair state of efficiency.	Uniforms worn out; arms and accoutrements in good order.	Manual and firing exercises, marching past, and the ordinary movements of a field day.	Yes.	5	10-91	8-33	July	3	July	6	Inspected by Maj.-General Commanding. Best shot in Company: Pte. Seguire, 38.
								5		7-47	do	3	do	6	Pte. W. Nicholson, 26.
								1		8-54	do	3	do	6	Sgt. J. Fitzpatrick 38.
								3		13-40	do	3	do	6	Pte. J. McLean, 41.
								1		15-05	do	3	do	6	Sgt. P. Eamon, 42
										12-70	do	3	do	6	Stf.-Sgt. Bennett, 38.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5, Lieut.-Col. B. VAN STRAUBENZEE, D.A.G.M.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.						
6th Provisional Regiment of Cavalry .....	4	Bvt. Lieut.-Col. Burwash, Mon- treal.									
No. 1 Troop...		Capt. McArthur, Montreal .....	3	35	2	22	St. Johns....	June 26	12	26	Ferry, steamer, and marched.
No. 2 do ...		Capt. Wanless, St. Andrew's...	3	35	3	30	do ....	do 26	12	82	
No. 3 do ...		Capt Barr, Have- lock .....	3	35	2	32	do ....	do 26	12	36	
No. 4 do ...		Capt. Bush, Clar- enceville.....	3	35	2	33	do ....	do 26	12	20	
		Staff .....	5	5	4	.....					
		Total.....	17	145	13	117					
Montreal Field Battery of Ar- tillery.....	4	Lt.-Col Steven- son, Montreal..	6	74	5	72	Montreal ....	Aug. ....	12		Marched.

performed the Annual Drill or 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Figure of Merit.			
								Ranges.				
								Battalion.	Company.			
2 hours.	12 hours.	19 cents per man, 24½ cents per horse.	Good:	No.	In fair order.	Instruction in cavalry movements.	Yes.	None.	28-71			
			One horse injured.					200, 400 and 500 yards.	10-00			
									24-52			
									22-07			
										By Deputy Adjutant-General, 6th July.	7th July.	Inspected by Maj.-General Com-manding, 5th July.
2 hours.			Good.	No.		See Report Inspector of Artillery.	do			Aug. 23		Inspected by Maj.-General Com-manding
			None.				do					

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual Strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No 5—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
Shefford Field Battery of Artillery.....		Bvt. Lieut.-Col. Amyrauld, Granby .....	6	74	8	60	St. Johns....	June 26	12	Camp	29	Rail.
Richmond Field Battery of Artillery .....		Major Hon. H. Aylmer, Richmond .....	6	74	4	42	Richmond...	.....	12	do		Marched.
Montreal Garrison Artillery...	6	Lt.-Col. Oswald, Montreal .....	26	252	18	227	Montreal.....	.....	12	Headquarters.		
St. John Garrison Artillery..	1	Major Drumm, St. Johns, P.Q.	3	42	2	36	St. Johns....	.....	12	do		

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.		General Conduct of Corps.		If any, and what casualties.		Whether in possession of Band. Number of Musicians and proficiency		General State of Clothing, Arms and Accoutrements.		Nature of Movements at Inspection, and how performed.		Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.		Number of Non-exercised Men, if any.		Ranges.		Figure of Merit.		Date of Inspection.		Date when Drill was completed.		REMARKS.	
2 hours.		do		Good		None.		Yes; 16; good.		In fair order.		See Report Inspector of Artillery.		Yes.		None.										Inspected by Maj.-General Com-manding, 5th July.	
do		do		Good		None.		Yes; 16.				do		do		do										Mustered <sup>a</sup> by Bri-gade-Major Lt.-Col. Worsley.	
do		do		Good.		None		Yes; 20; fair.		Good order.				do		do						Aug. 17				do	
do		do		Good.		None.		No.		Fair order.		See Report Inspector of Artillery.		do		do										Inspected by Lt.-Col. Cotton.	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Place.	Date.	Number of days drill performed.	Miles.		Mode.	
			Officers. N - C. O. and Men.	Officers. N - C. O. and Men.							
Montreal Engineers. ....	...	Major Kennedy, Montreal .....	3	84	2	50	Montreal ....	.....	12	Headquarters.	
1st Battalion, Prince of Wales Rifles.....	6	Lieut.-Col. Bond, Montreal.....	26	252	14	224	Montreal....	April 3	12	Headquarters.	
3rd Battalion, Victoria Rifles of Canada.....	...	Lt-Cl. Whitehead, Montreal.....	26	252	20	252	Montreal ....	.....	12	do	
5th Royal Scots Fusiliers.....	...	Lt.-Cl. Campbell, Montreal.....	26	252	20	205	Montreal.....	July 1	12	do	

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.			Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
									Battalion.	Company.			
2 hours.		Good.	Good.	Yes.	Fair order.	See Report Inspector of Engineers.	Yes.						Inspected, by Maj. Raban, R.E.
2 hours.		Good.	Good.	Yes; 26; brass; fair.	Good.	Battalion drill; manual and firing and attack drill.	Yes.				Oct. 20	Oct. 19	Inspected by Maj.-General Com-manding.
do		Good.	Good.	Yes; brass; 35; very good.	do	do	do	do			June 17	.....	do
do		Good.	Good.	Yes; bagpipes, drums and brass; fair.	do	do	do	do			Oct. 20	Oct. 11	do

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.		Number of days drill performed.	Miles.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
6th Battalion, Fusiliers.....	6	Lt.-Col. Gardner, Montreal .....	26	252	21	301	Montreal ...	July 1	12	Headquarters.	
11th Battalion, Infantry.....	8										
No. 1 Company ...		Cpt. Weightman, St. Andrews...	3	42	2	34	St. John's...	June 26	12	Camp.	76
No. 2 do ...		Capt. Smith, West Gore.....	3	42	2	26	do ....	do 26	12		67
No. 3 do ...		Capt. Jekyll, Morin Flats.....	3	42	1	34	do ...	do 26	12		76
No. 4 do ...		Capt. J. Simpson, Lachute.....	3	42	2	18	do .....	do 26	12		67
No. 5 do ...		Capt. T. Evans, East Gore.....	3	42	2	22	do .....	do 26	12		76
No. 6 do ...		Capt. Pollock, Mille Isles.....	3	42	2	26	do .....	do 26	12		81
No. 7 do ...		Capt. Hoy, Carillon.....	3	42	1	31	do .....	do 26	12		72
No. 8 do ...		Capt. Cushing, Chatham .....	3	42	1	21	do .....	do 26	12		77
		Staff .....	8	.....	4	5					
		Total .....	32	336	15	217					

performed the Annual Drill for 1883-84—*Continued.*

	Time concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Date of Inspection.	Date when Drill was completed.	REMARKS.
12 hours.	2 hours.		Good. None.	Yes; brass; fire and drums; good.	Arms under repair.	Battalion drill; manual and firing and attack drill.	Yes. None.						Oct. 27	Oct. 25	Inspected by Lt.-Col. Worsley, Brigade Major.
Squad, company and battalion drill.	No.	Good.	1 bugler; broken collar bone.				Yes.	None.	200, 400 and 500 yards.	16-60	13-28 28-56 8-27 16-38 21-31 20-40 16-12 16-90				Inspected by Maj.-General Com-manding, 5th July.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual Strength present at inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 5—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. C. O. and Men.	Officers.	N. C. O. and Men.						
50th Battalion, Huntingdon Borderers.....	8	Lt Cl McEachern, C M.G., Huntingdon.										
No. 1 Company ...		Capt. Henderson, Hinchinbrook..	3	42	1	10	St. John's...	June 26	12	Camp.	51	Rail.
No. 2 do ...		Cpt. Cunningham, Huntingdon....	3	42	1	10	do ...	do 26	12		51	
No. 3 do ...		Capt. Gardner, Huntingdon....	3	42	3	14	do ...	do 26	12		51	
No. 4 do ...		Captain Cairns, Durham.....	3	42	2	27	do ...	do 26	12		51	
No. 5 do ...		Capt. Anderson, Athelston.....	3	42	1	12	do ...	do 26	12		51	
No. 6 do ...		Captain Watson, Rockburn.....	3	42	3	17	do ...	do 26	12		51	
No. 7 do ...		Captain Gilbert, Dewittville....	3	42	1	14	do ...	do 26	12		51	
No. 8 do ...		Capt. Buchanan, Dundee. ....	3	42	2	6	do ...	do 26	12		51	
		Staff.....	8		7	5						
		Total .....	32	336	21	115						
51st Battalion, Hemmingford Rangers.....	8	Lt.-Col. Rogers, Hemmingford.										
No. 1 Company ...		Captain Milne, Havelock.....	3	42	2	25	St. John's...	June 26	12	do	54	do
No. 2 do ...		Captain Waters, Lacolle.....	3	42	2	36	do ...	do 26	12		20	
No. 3 do ...		Captain Rowe, Franklin.....	3	42	3	11	do ...	do 26	12		59	
No. 4 do ...		Cpt McNaughton, Hemmingford..	3	42	2	33	do ...	do 26	12		40	
No. 5 do ...		Captain Elliott, Roxham.....	3	42	2	24	do ...	do 26	12		49	
No. 6 do ...		Captain Hayes, Hemmingford..	3	42	2	13	do ...	do 26	12		45	
No. 7 do ...		Capt Stewart, St. Jean Chrysostôme.....	3	42	2	17	do ...	do 26	12		60	
No. 8 do ...		Capt. Ste. Marie, St Rémi.....	3	42	3	39	do ...	do 26	12		28	
		Staff ....	8		7	5						
		Total.....	32	336	25	203						



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5—Continued.			Establishment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date		Number of days drill performed.	Miles.
52nd Battalion, Brome Infantry	7	Lieut.-Col. Hall, Knowlton.									
No. 1 Company	...	Captain Allen, Abercorn .....	3	42	1	2	St. Johns....	June 26	12	45	Camp.  Rail and marched.
No. 2 do	...	Capt. Macfarlane, Knowlton .....	3	42	3	9	do ...	do 26	12	44	
No. 3 do	...	Capt. Davidson, Sutton .....	3	42	3	7	do ...	do 26	12	40	
No. 4 do	...	Capt. Hall, East Farnham .....	3	42	3	25	do ...	do 26	12	31	
No. 5 do	...	Captain Bowen, Mansonville .....	3	42	2	32	do ...	do 26	12	64	
No. 6 do	...	Captain Mooney, Bolton .....	3	42	3	18	do ...	do 26	12	53	
No. 7 do	...	Captain Phelan, Magog .....	3	42	1	21	do ...	do 26	12		
		Staff .....	8	.....	5	1					
		Total .....	29	294	21	115					
53rd Battalion, Infantry .....	4	Lt.-Col. Felton, Sherbrooke.....	20	168	17	154	Sherbrooke..	.....	12		Headquarters.



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5—Continued.			Establishment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - O. and Men.	Officers.	N. - O. and Men.					
58th Battalion ...	10	Lieut.-Col. Pope, Cookshire.									
No. 1 Company ...		Captain McIver, Bury .....	3	42	2	41	St. Johns....	June 26	12	Camp	144
No. 2 do ...		Captain Ross, Gould .....	3	42	2	42	do ...	do 26	12	do ...	144
No. 3 do ...		Capt. J. T. McIver, Marston .....	3	42	3	37	do ...	do 26	12	do ...	180
No. 4 do ...		Capt. Weyland, Marbleton .....	3	42	2	38	do ...	do 26	12	do ...	142
No. 5 do ...		Capt. ———, Lake Megantic.	3	42	1	38	do ...	do 26	12	du ...	180
No. 6 do ...		Captain Cooke, Hatley .....	3	42	1	30	do ...	do 26	12	do ...	133
No. 7 do ...		Capt. Trenholm, Coaticook .....	3	42	2	37	do ...	do 26	12	do ...	249
No. 8 do ...		Captain Clarke, Beebe Plain .....	3	42	2	33	do ...	do 26	12	do ...	148
No. 9 do ...		Captain McLeod, Winslow .....	3	42	2	42	do ...	do 26	12	do ...	170
No. 10 do ...		Captain Baker, Cookshire .....	3	42	2	40	do ...	do 26	12	do ...	135
		Staff .....	8	.....	7	5					
		Total .....	38	420	26	383					
60th Battalion, Mississquoi Infantry.....	6	Lt.-Col. Rowe, Clarenceville.									
No. 1 Company ...		Capt. Sixby, Philipsburg .....	3	42	2	26	St. Johns...	June 26	12		26
No. 2 do ...		Captain Jamison, Clarenceville...	3	42	1	24	do ...	do 26	12		20
No. 3 do ...		Capt. Robinson, Dunham .....	3	42	2	25	do ...	do 26	12		25
No. 4 do ...		Captain Higgins, West Farnham.	3	42	1	23	do ...	do 26	12	Camp.	15
No. 5 do ...		Captain Bockus, Stanbridge .....	3	42	3	11	do ...	do 26	12		24
No. 6 do ...		Capt. Westover, Frelighsburg...	3	42	2	18	do ...	do 26	12		31
		Staff .....	8	.....	6	4					
		Total.....	26	252	17	131					

Rail.

Wagon and Railroad.

performed the Annual Drill or 1883-84—*Continued.*

12 Hours.		24 hours.		Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
												Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
													Battalion.	Company.			
19c. per man and 24½c. per horse	19c. per man and 24½c. per horse	Good.	Good.	19 cents per man ; 24½ cents per horse.	19 cents per man ; 24½ cents per horse.	Good.	Good.										
		None.	None.			None.	None.										
Yes ; 18 performers ; fair.	Yes ; 18 performers ; fair.			Yes ; 18 performers ; fair.	Yes ; 14 performers ; fair.												
Fair ; arms require repair.	Fair ; arms require repair.			Clothing worn out ; arms require repairs.	Clothing worn out ; arms require repairs.												
Squad, Company and Battalion drill.	Squad, Company and Battalion drill.			Squad, company and battalion.	Squad, company and battalion.												
Yes.	Yes.			Yes.	Yes.												
Nil.	Nil.			None.	None.												
200, 400 and 500 yards.	200, 400 and 500 yards.			200, 400 and 500 yards.	200, 400 and 500 yards.												
				22-26	19-4]												
				15-21	23-88												
				21-04	24-05												
				21-29	16-27												
				18-30	31-84												
				26-92	24-11												
				30-95	8-91												
					17-27												
					16-65												
					9-80												
					13-50												
By Deputy Aejutant-General, 6th July.	By Deputy Aejutant-General, 6th July.			By Deputy Adjutant-General, 6th July.	By Deputy Adjutant-General, 6th July.												
July 9	July 9			July 7	July 7												
do 9	do 9			do 9	do 7												
do 9	do 9			do 9	do 7												
do 9	do 9			do 9	do 7												
do 9	do 9			do 9	do 7												
do 9	do 9			do 9	do 7												
Inspected by Major General commanding, 5th July.	Inspected by Major General commanding, 5th July.			Inspected by Major-General commanding, 5th July.	Inspected by Maj.-General commanding, 5th July.												

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5—Continued.		Establishment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
		Corps.	Corps.							
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N-C. O. and Men.	Officers.	N-C. O. and Men.	Place.	Date.	Number of days drill performed.	
79th Battalion, Sheffield Highlanders.....	8	Lt.-Col. Cox, Granby.								
No. 1 Company		Captain Seale, Granby.....	3	42	2	20	Waterloo....	Sept. 17	12	12
No. 2 do ...		Capt. Whitehead, Waterloo.....	3	42	1	36	do ...	do 17	12	12
No. 3 do ...		Captain Bell, Waterloo.....	3	42	3	31	do ...	do 17	12	8
No. 4 do ...		Capt. Galbraith, South Roxton.	3	42	3	21	do ...	do 17	12	12
No. 5 do ...		Captain Wood, Roxton Falls...	3	42	1	31	do ...	do 27	12	30
No. 6 do ...		Capt. Hackwell, Boscobel.....	3	42	3	12	do ...	do 17	12	14
No. 7 do ...		Captain Brown, Lawrenceville.	3	42	3	31	do ...	do 17	12	13
No. 8 do ...		Captain Brooks, Waterloo.....	3	42	3	32	do ...	do 17	12	
		Staff.....	8	.....	7	5				
		Total.....	32	336	26	219				

Camp.

Wagon and Railroad.

performed the Annual Drill for 1883-4—*Continued.*

12 Hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
									Battalion.	Company.			
25c. per man and 35c per horse.													
Good.													
None.													
Yes; 16 performers; fair.													
do													
do													
do													
do													
200, 400 and 500 yards.													
									35-01	40-80		Sept. 28	do
										23-63		do 28	
										45-74		do 28	
										46-10		do 28	
										34-01		do 28	
										32-35		do 28	
										30-69		do 28	
										28-75		do 28	
By Deputy Adjutant-General, Sept. 27th.													

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 6, Lieut.-Col. A. C. DeLOTBINIERE HARWOOD, D.A.G.M.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.						Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		
64th Battalion ...	6	Lt.-Col. Prud'-homme, Beauharnois.									
No. 1 Company ...		Capt. Deslauriers, Beauharnois....	3	42	3	34	Laprairie. ...	June 25	12	Camp.	29 miles Boat.
No. 2 do ...		Capt. F. Bazinet, Beauharnois....	3	42	1	9	do ...	do 25	12		
No. 3 do ...		Capt. J. Cadieux, St Etienne.....	3	42	3	18	do ...	do 25	12		
No. 4 do ...		Capt. J. Poirier, St Louis de Gonzague .....	3	42	1	24	do ...	do 25	12		
No. 5 do ...		Capt. W. Danis, Valleyfield.....	3	42	3	34	do ...	do 25	15		
No. 6 do ...		Capt. Langevin, St. Timothé.....	3	42	2	16	do ...	do 25	12		
		Staff.....									
		Total.....	26	252	20	139					
65th Battalion ...	8	Lt.-Col. Ouimet, Montreal .....								Days: 12 Head Quarters; extra days: 4 in Camp.	
No. 1 Company ...		Capt. P. Bédard, Montreal .....	3	42	1	40	Laprairie. ...	July 2	12		
No. 2 do ...		Capt. C. Coursol, Montreal .....	3	42	3	32	do ...	do 2	12		
No. 3 do ...		Lieut. Bauzet, Montreal .....	3	42	1	27	do ...	do 2	12		
No. 4 do ...		Capt. A. Roy, Montreal.....	3	42	1	29	do ...	do 2	12		
No. 5 do ...		Capt. A. LaRoque, Montreal.....	3	42	2	32	do ...	do 2	12		
No. 6 do ...		Capt. J. Giroux, Montreal.....	3	42	3	42	do ...	do 2	12		
No. 7 do ...		Capt. H. Prevost, Montreal .....	3	42	3	29	do ...	do 2	12		
No. 8 do ...		Capt. DesRivières, Montreal .....	3	42	2	24	do ...	do 2	12		
		Staff.....									
		Total.....	32	336	24	255					



## INSPECTION REPORT OF CORPS which have

[illegible]

performed the Annual Drill for 1883-84—Continued.

18 hours.	18 hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casual ties.	Whether in possession of Band. Number of Musicians and proficiency	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
									Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.			
										Battalion.	Company.			
22½c.	22½c.	22½c.	22½c.	Good.	None.	None.	Good.	Squad, manual and firing, Company, Battalion and Brigade drill; also, skirmishing and guard duty.	Yes.			July 5	July 7	
Good.	Good.	Good.	Good.	Good.	None.	None.	Good.					do 5	do 7	
None.	None.	None.	None.	None.	None.	None.	Good.					do 5	do 7	
do	do	do	do	do	do	do	do					do 5	do 7	
do	do	do	do	do	do	do	do					do 5	do 7	
Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.	Squad, manual and firing Company, Battalion and Brigade drill; also, skirmishing and guard duties.							
Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.							
200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.	200, 400 and 500 yards.							

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.		Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date.	Number of days drill performed.			
83rd Battalion...	6	Lt.-Col. Sheppard Joliette										
No. 1 Company ...		Capt. Delfosse, Joliette .....	3	42	3	28	Joliette .....	Aug. 25	12	Camp.		
No. 2 do ...		Capt. Granger, Joliette .....	3	42	*							
No. 3 do ...		Capt. Dostaler, Joliette .....	3	42	3	36	do .....	do 25	12			
No. 4 do ...		Capt. Guilbault, Joliette .....	3	42	3	28	do .....	do 25	12			
No. 5 do ...		Capt. Thos. Blair, Joliette .....	3	42	3	39	do .....	do 25	12			
No. 6 do ...		Capt. Copping, Joliette .....	3	42	3	34	do .....	do 25	12			
		Staff .....			7	.....						
		Total .....	25	252	22	160						
84th Battalion ...	6	Lt.-Col. Doherty, St. Hyacinthe.										
No. 1 Company ...		Captain Chaput, St. Hyacinthe..	3	42	3	23	Laprairie....	June 25	12	do	45	Rail.
No. 2 do ...		Capt. G. Morin, St. Pie .....	3	42	1	22	do ...	do 25	12		45	
No. 3 do ...		Capt. Duchaine, St. Simon .....	3	42	3	16	do ...	do 25	12		45	
No. 4 do ...		Capt. Johnston, Sorel .....	3	42	2	25	do ...	do 25	12		45	
No. 5 do ...		Capt. B. Benoit, St. Hyacinthe.	3	42	2	35	do ...	do 25	12		45	
No. 6 do ...		Capt. Beaucharme Arthabaska ....	3	42	2	35	do ...	do 25	12		45	
		Staff .....			7	4						
		Total .....	26	252	20	160						

performed the Annual Drill for 1883-84—Continued.

18 hours.		25c.		Good.		None.		Yes.		Good.		Squad, manual, firing, company, marching past ; skirmishing, guard duties and battalion.	
22½c.		Good.		None.		do		do		do		Squad, manual, firing, company, battalion and brigade drill ; also, skirmishing and guard duties.	
15		9		9		4		21		17		200, 400 and 500 yards.	
11-62													
July 5		do 5		do 5		do 5		do 5		do 5		July 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	
do 5		do 5		do 5		do 5		do 5		do 5		do 7	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 6—Continued.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers. N - C. O. and Men.	Officers. N - C. O. and Men.	Officers. N - C. O. and Men.	Place.	Date.	Number of days drill performed.			
85th Battalion ...	6	Lt.-Col. Brousseau, Laprairie.									
No. 1 Company ...		Capt DeMontigny, Laprairie.....	3	42	3	41	Laprairie....	June 25	12		
No. 2 do ...		Capt. Chagnon, Laprairie.....	3	42	3	45	do ... do	25	12		
No. 3 do ...		Capt. Sylvester, Laprairie.....	3	42	3	41	do ... do	25	12		
No. 4 do ...		Capt. Bourassa, Laprairie.....	3	42	3	37	do ... do	25	12		
No. 5 do ...		Capt. Jos. Dunn, Laprairie.....	3	42	3	34	do ... do	25	12		
No. 6 do ...		Captain Jodoin, Laprairie.....	3	42	3	29	do ... do	25	12		
		Staff.....	8	.....	8	6					
		Total.....	26	252	25	233					
86th Battalion ...	6	Lt.-Col. Houde, Louiseville.									
No. 1 Company ...		Capt. Dufresne, Yamachiche....	3	42	3	24	Louiseville .	Sept. 26	12		
No. 2 do ...		Captain LeGris, Louiseville.	3	42	3	41	do ... do	26	12		
No. 3 do ...		Captain Trudel, .....	3	42	3	38	do ... do	26	12		
No. 4 do ...		Capt. Henault, St. Gabriel .....	3	42	3	34	do ... do	26	12		
No. 5 do ...		Capt. Levesque, .....	3	42	2	23	do ... do	26	12		
No. 6 do ...		Lieut. Drainville, .....	3	42	1	14	do ... do	26	12		
		Staff.....	8	.....	8	.....					
		Total .....	26	252	23	174					

performed the Annual Drill for 1883-84—*Continued.*

18 hours.		24 hours.		Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.		General Conduct of Corps.		Whether in possession of Band. Number of Musicians and proficiency.		General State of Clothing, Arms and Accoutrements.		Nature of Movements at Inspection, and how performed.		Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act		Target Practice.		Date of Inspection.		Date when Drill was completed.		REMARKS.			
25c.	25c.	25c.	25c.	Good.	Good.	None.	None.	Yes.	Good.	Squad, manual, firing, company, battalion and brigade drill ; also, skirmishing and guard duties.		Squad, manual, firing, company, battalion and brigade drill ; also, skirmishing and guard duties.		Yes.		11 40 8 12 14 12		200, 400 and 500 yards.		10-97		July 5 do 5 do 5 do 5 do 5		July 7 do 7 do 7 do 7 do 7			
do	do	do	do	Good.	Good.	None.	None.	Yes.	Good.	Squad, manual, firing, company and battalion drill ; also, skirmishing and guard duties.		Squad, manual, firing, company and battalion drill ; also, skirmishing and guard duties.		do		200, 400 and 500 yards.		10-54		Oct. 5 do 5 do 5 do 5 do 5		Oct. 6 do 6 do 6 do 6 do 6					

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7, Lient.-Col. E. J. DUCHESNAY, D.A.G.M.			Establish- ment.	Actual Strength present at Inspection		Muster.			Whether in Camp or otherwise.		Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date.	Number of days drill performed.	Whether in Camp or otherwise.	Miles.	Mode.
Quebec Field Battery .....		Major Lindsay, Quebec.....	6	74	6	70	Lévis .....	July 6 12	Camp.				Marching.
55th Battalion ...	6	Major Ward, Inverness.											
No. 1 Company ...		Captain Lipsey, Kinnear's Mills	3	42	2	33	Lévis .....	July 6 12				81	Wagon, railway and marched.
No. 2 do ...		Captain Wallace, Inverness .....	3	42	2	28	do .....	do 6 12				51	
No. 3 do ...		Captain Porter, Lower Ireland..	3	42	2	27	do .....	do 6 12				56	
No. 4 do ...		Captain Watkins, Reid's Mills....	3	42	1	39	do .....	do 6 12	do			81	
No. 5 do ...		Captain Bourke, Somerset.....	3	42	2	34	do .....	do 6 12				50	
No. 6 do ...		Captain Carroll, St. Sylvester...	3	42	1	19	do .....	do 6 12				30	
		Staff .....			6	21							
		Total .....	18	252	16	201							
1st Battalion....	6	Lt.-Col. Colfer, St. Thomas.											
No. 1 Company ...		Captain Fournier, St. Thomas ....	3	42	3	30	Lévis .....	July 6 12				47	Railway, marched and steamer.
No. 2 do ...		Captain Landry, St. Pierre.....	3	42	2	30	do .....	do 6 12				42	
No. 3 do ...		Capt. Desjardins, Cap St. Ignace.	3	42	2	33	do .....	do 6 12				55	
No. 4 do ..		Lt Bernier, Trois Saumons... ..	3	42	2	31	do .....	do 6 12	do			71	
No. 5 do ...		Lieut Giasson, L'Islet .....	3	42	1	18	do .....	do 6 12				63	
No. do ...		Captain Lemieux, Chicoutimi.....	3	42	2	42	do .....	do 6 12				...	
		Staff.....			5								
		Total .....	18	252	17	184							

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Figure of Merit.			
								Ranges.				
								Battalion.	Company.			
24 hours.	25½c.	Very good.	None.	No.	Very good.	Inspected by Lt.-Col Cotton, Asst Inspector Art'y, Province of Quebec.	Yes.			July 6	July 6	Major-General R. G. A. Luard, Comm'g Canadian Militia.
do	do	Very good.	None.	Yes; 16 musicians; very good.	Good.	Mannual and firing exercises; company and battalion drill; extending for attack; well performed.	Yes.			July 6	July 6	do
do	do	Very good.	None.	No.	do	do	Yes.			July 6	July 6	do

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection.		Muster.				Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 7—Continued.			Corps.		Corps.		Place.	Date	Number of days drill performed.	Miles.		Mode.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.							
81st Battalion...	6	Lt.-Col. Beaudry, Pointe aux Trembles.											
No. 1 Company	...	Captain Gauvin, Pointe aux Trembles.....	3	42	3	25	Lévis .....	July	6	12	36	Camp.  Wagon and steamer.	
No. 2 do	...	Captain Frenette, St. Raymond...	3	42	3	33	do .....	do	6	12	45		
No. 3 do	...	Captain Paré, St. Raymond...	3	42	3	32	do .....	do	6	12	66		
No. 4 do	...	Captain Pâquette, Deschambault..	3	42	3	36	do .....	do	6	12	45		
No. 5 do	...	Captain Frenette, Cap Santé .....	3	42	3	10	do .....	do	6	12	30		
No. 6 do	...	Capt. Courteau, Lotbinière.....	3	42	3	20	do .....	do	6	12	45		
		Staff.....			7	18							
		Total.....	18	252	25	174							
87th Battalion...	6	Lt.-Col. Laurin, Ancienne Lorette.											
No. 1 Company	...	Major Dorion, Charlebourg....	3	42	3	31	Lévis .....	July	6	12	6	do  do	
No. 2 do	...	Capt. Laurin, Anc. Lorette...	3	42	3	42	do .....	do	6	12	11		
No. 3 do	...	Capt. Fages, St. Ambroise.....	3	42	2	42	do .....	do	6	12	9		
No. 4 do	...	Capt. Routhier, Ste. Foye.....	3	42	3	40	do .....	do	6	12	14		
No. 5 do	...	Major Brunet, St. Augustin .....	3	42	2	37	do .....	do	6	12	18		
No. 6 do	...	Capt. Blouin, St. Jean, I. Orleans	3	42	2	40	do .....	do	6	12	15		
		Staff.....			8	20							
		Total .....	18	252	23	246							

performed the Annual Drill for 1883-84—*Continued.*[illegible]

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7—Continued.			Establishment.	Actual strength present at inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
88th Battalion ...	6	Lt.-Col. Fraser, Kamouraska,									
No. 1 Company ...		Capt. Potvin, Ste. Anne .....	3	42	3	41	Lévis .....	July 6	12	Camp	84
No. 2 do ...		Capt. Gauthier, Baie St. Paul...	3	42	3	39	do .....	do 6	12	do	90
No. 3 do ...		Capt. LeBel, Kamouraska ...	3	42	3	34	do .....	do 6	12	do	104
No. 4 do ...		Capt. Têtu, Riv. Ouëlle .....	3	42	3	30	do .....	do 6	12	do	97
No. 5 do ...		Capt. Langlais, St. Denis .....	3	42	3	42	do .....	do 6	12	do	101
No. 6 do ...		Capt. Cimon, Les Eboulements ...	3	42	3	42	do .....	do 6	12	do	102
		Staff .....			7	12					
		Total .....	18	252	25	240					
Railway, steamer and wagon.											
89th Battalion ...	8	Lt.-Col. Hudon, Riv du Loup,									
No. 1 Company ...		Captain Lebel, Riv. du Loup...	3	42	1	38	Lévis .....	July 6	12	Camp	126
No. 2 do ...		Captain Frère, Cacouna .....	3	42	2	38	do .....	do 6	12	do	133
No. 3 do ...		Capt. Blanchet, St. Arsène .....	3	42	2	38	do .....	do 6	12	do	130
No. 4 do ...		Captain Marceau, Isle Verte .....	3	42	2	49	do .....	do 6	12	do	141
No. 5 do ...		Captain Côté, Bic .....	3	42	2	15	do .....	do 6	12	do	180
No. 6 do ...		Captain Riquet, Rimouski .....	3	42	3	27	do .....	do 6	12	do	182
No. 7 do ...		Captain Martin, Rimouski .....	3	42	2	15	do .....	do 6	12	do	190
No. 8 do ...		Captain LeBel, St. Anaclet .....	3	42	3	38	do .....	do 6	12	do	193
		Staff .....			7	19					
		Total .....	24	336	24	268					
Marched and railway.											

performed the Annual Drill or 1883-84—*Continued.*

	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
									Battalion.	Company.			
do	24 hours.	21½c.	Very good.	No.	Very good.	Manual and firing exercises; company and battalion drill; extending for attack; well performed.	Yes.				July 6	July 6	Major-General R. G. A. Luard, Comm'g Canadian Militia.
do											do 6	do 6	
											do 6	do 6	
											do 6	do 6	
											do 6	do 6	
											do 6	do 6	
													do do
											July 6	July 6	
											do 6	do 6	
											do 6	do 6	
											do 6	do 6	
											do 6	do 6	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
23rd Battalion ...	4	Lt.-Col. Duchesnay, St. Marie.										
No. 1 Company ...		Major Jalbert, St. Marie.....	3	42	2	25	St. Marie ....	Sept. 20	12	In camp, at headquarters.		
No. 2 do ...		Major Paradis, Aylmer.....	3	42	2	42	do ...	do 20	12		53	
No. 3 do ...		Capt. DeLéry, St François. ....	3	42	3	19	do ...	do 20	12		21	
No. 4 do ...		Captain Paradis, Aylmer.....	3	42	2	42	do ...	do 20	12		53	
		Staff.....			5	5						
		Total. ....			14	133						
In camp, at headquarters.												
Queen's Own Canadian Hussars.....	2	Lt.-Col. Forsyth, Quebec.										
No. 1 Troop.....		Lt.-Col. Turnbull, Quebec.....	3	42	3	35	Quebec. ....	May 28	12	Headquarters.		
No. 2 do ...		Lt.-Col. Gray, Quebec.....	3	42	2	33	do .....	do 28	12			
		Staff.....			5							
		Total.....			10	68						
Headquarters.												

performed the Annual Drill for 1883-4—*Continued.*

		24 hours.	Time required to concentrate the Battalion or Corps.
		25 cents.	Cost of rations per head, per diem, at encampment.
		Very good.	General Conduct of Corps.
		None.	If any, and what casualties.
		Yes; 12 musicians; good.	Whether in possession of Band. Number of Musicians and proficiency.
		Good.	General State of Clothing, Arms and Accoutrements.
		Manual and firing exercises; company and battalion drill; extending for attack; very creditably performed.	Nature of Movements at Inspection, and how performed.
		Yes.	Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act.
			Number of Non-exercised Men, if any.
			Ranges.
			Battalion.
			Company.
			Figure of Merit.
			Target Practice.
			Date of Inspection.
			Date when Drill was completed.
			REMARKS.
Good.	Trumpet band; 7 performers.	Very good.	
None.		None.	
do	Marching past at a walk and at the gallop; field movements; sword exercise at the halt and on the move; well performed.	do	
May 28		Spt 20	
do 28		do 20	
		do 20	
		do 20	
May 28		Sept. 20	
do 28		do 20	
		do 20	
		do 20	
do			Lt.-Col. Duchesnay, D.A.G., 7th Mil. Dis.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at inspection.		Muster.				Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No 7—Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.	Miles.		Mode.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.							
8th Royal Rifles.	6	Lt.-Col. Scott, Quebec.									Headquarters.		
No 1 Company		Captain Russell, Quebec.....	3	42	3	39	Quebec.....	May 24	12				
No. 2 do		Captain Wurtele, Quebec.....	3	42	3	35	do .....	do 24	12				
No. 3 do		Capt Holloway, Quebec.....	3	42	3	34	do .....	do 24	12				
No. 4 do		Captain Miller, Quebec.....	3	42	2	38	do .....	do 24	12				
No. 5 do		Captain Ahern, Quebec.....	3	42	3	36	do .....	do 24	12				
No. 6 do		Captain Gilmour, Quebec.....	3	42	2	40	do .....	do 24	12				
		Staff.....			6	5							
		Band, buglers, pioneers and signal corps....				55							
		Total.....			22	282							
9th Battalion, Voltigeurs.....	8	Lt.-Col. Amyot, Quebec.									Headquarters.		
No. 1 Company		Capt. Frenette, Quebec.....	3	42	2	8	Quebec.....	May 21	12				
No. 2 do		Capt. Chouinard, Quebec.....	3	42	2	17	do .....	do 21	12				
No. 3 do		Maj. DeLagrange, Quebec.....	3	42	1	16	do .....	do 21	12				
No. 4 do		Capt. Garneau, Quebec.....	3	42	1	30	do .....	do 21	12				
No. 5 do		Capt. Pennee, Quebec.....	3	42	2	30	do .....	do 21	12				
No. 6 do		Capt. Tessier, Quebec.....	3	42	2	8	do .....	do 21	12				
No. 7 do		Capt. Pineau, Quebec.....	3	42	2	23	do .....	do 21	12				
No. 8 do		Capt. Levasseur, Quebec.....	3	42	2	10	do .....	do 21	12				
		Staff.....			5	7							
		Total.....			19	149							

performed the Annual Drill for 1883-84— *Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Target Practice.		Date of Inspection.	Data when Drill was completed.	REMARKS.
								Battalion.	Figure of Merit. Company.			
	Good.	Good.	Yes: 37 musicians; very good.	Very good.	Marching past; manual and firing exercises; company and battalion drill; skirmishing; very well performed.	Yes.				May 24	May 24	Lt.-Col. Duchesnay, D. A. G., Mil. Dis. No. 7.
	None.	None.								do 24	do 24	
										do 24	do 24	
										do 24	do 24	
										do 24	do 24	
	No.									May 21	May 21	do
			Soiled; entitled to new; arms in good order.		Marching past; manual and firing exercises; company and battalion drill; well performed.	do				do 21	do 21	
										do 21	do 21	
										do 21	do 21	
										do 21	do 21	
										do 21	do 21	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8, Lieut.-Col. J. B. TAYLOR, D.A.G.M.			Establish- ment	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.						
8th Regiment Cavalry.....	4	Lt-Col. Domville, Apoahqui.									
No. 3 Troop ...		Captain Foshay, Apoahqui.....	3	42	3	42	Sussex.....	Sept. 24	12	Camp.	Average 22 miles. Marched and railway.
No. 5 do ...		Captain Pearson, Johnston.....	3	42	3	42	do .....	do 24	12		
No. 6 do ...		Captain Scovil, Shediac.....	3	42	3	42	do .....	do 24	12		
No. 7 do ...		Captain Brittain, Springfield .....	3	42	3	42	do .....	do 24	12		
		Staff.....	8		7						
		Total .....	20	168	19	168					
Newcastle Field Battery .....		Major Call, New- castle.....	6	74			Newcastle...		12	do	
Woodstock Field Battery .....		Major Dibbles, Woodstock.....	6	74			Woodstock .		12	do	
Brigade Garrison Artillery .....	6	Lt.-Col. Foster, St. John.									
No. 1 Battery..		Capt. Kane, St. John .....	3	42	3	42	St. John, N.B		12	Not in Camp.	
No. 2 do ...		Capt. Ring, St. John.....	3	42	3	42	do ...		12		
No. 3 do ...		Captain Ewing, Portland.....	3	42	3	42	do ...		12		
No. 7 do ...		Bt. Lt.-Col. Gil- lespie, Chatham	3	42	3	42	do ...		12		
No. 9 do ...		Captain Lander, Fairville .....	3	42	3	42	do ...		12		
No. 10 do ...		Capt. Armstrong, St. John .....	3	42	3	42	do ...		12		
		Staff.....	8								
		Total .....	26	252							

performed the Annual Drill for 1883-84—*Continued.*

6 hours.	24 hours.	Time required to concentrate the Battalion or Corps.
	18½ cents.	Cost of rations per head, per diem, at encampment.
Good.	Fair.	General Conduct of Corps.
None.	None.	If any, and what casualties.
Yes; 14; drums and fifes; fair.	Yes; 14; good.	Whether in possession of Band. Number of Musicians and proficiency
Good.	Everything in very good state, except the saddlery.	General State of Clothing, Arms and Accoutrements.
do	Vide Report of Inspector of Artillery	Nature of Movements at Inspection, and how performed.
Yes.	Yes.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.
Artillery.		Number of Non-exercised Men, if any.
		Ranges.
		Battalion.
		Company.
9th October, 1883.	4th October, 1883.	Date of Inspection.
10th October, 1883.	5th October, 1883.	Date when Drill was completed.
do	Inspection made by the Assistant Inspector of Artillery.	REMARKS.
	Inspection made by the Inspector of Artillery.	
	Inspected by the Major-General Commanding on 4th Oct., who expressed his great satisfaction with the corps.	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8—Continued.			Establishment.	Actual strength present at inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.	Date.	Number of days drill performed.		
Brighton Engineers.....		Major Virree, Woodstock .....	3	42	2	42	Sussex .....	Sept. 24	12	Camp.	185 Railway.
62nd Battalion Fusiliers.....	6	Lt.-Col. Blaine, St. John.									
No.1 Company ...		Capt. Devlin, St. John.....	3	42	2	40	St. John, N.B.		12		
No. 2 do ...		Capt. Sturdee, St. John.....	3	42	3	42	do ...		12		
No. 3 do ...		Capt. Blois, St. John.....	3	42	3	42	do ...		12		
No. 4 do ...		Capt. Magee, St. John.....	3	42	3	41	do ...		12		
No. 5 do ...		Capt. Sorrel, St. John.....	3	42	3	42	do ...		12		
No. 6 do ...		Capt. Hartt, St. John.....	3	42	3	39	do ...		12		
		Staff.....	8		8						
		Total .....	26	252	24	246					

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.	Date of Inspection.	Date when Drill was completed.	REMARKS.
3 hours.	1 day. 18½ cents.	Good. None.	Yes; 21; very good.	Good.	Vile Report of Inspector of Engineers.	Yes.							4th October, 1883.	5th October, 1883.	Inspected by the Inspector of Engineers; also several days in camp under his personal instruction. Inspected by the Major-General Commanding on 4th October.
					Manual and firing exercises; battalion drill; extended order; the attack; quite satisfactory.	do			Return not yet received.				8th November, 1883.	8th November, 1883.	Inspected by the Deputy Adjutant-General, No. 8, on 8th November.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8—Continued.			Establishment.		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.	
			Officers.	N - C. O. and Men.	Officers.	N - C. O. and Men.							
67th Battalion...	9	Lt -Col. Upton, Woodstock.											
No.1 Company		Captain Bourne, Woodstock.....	3	42	3	41	Sussex, N.B.	Sept. 24	12	Camp.	Average, 197 miles. Railway and Wagons.		
No. 2 do		Captain Adams, Centreville.....	3	42	2	42	do	do	24				12
No. 3 do		Captain Hoyt, Richmond.....	3	42	3	42	do	do	24				12
No. 3 do		Captain Boyer, Brighton.....	3	42	2	41	do	do	24				12
No. 4 do		Captain Fletcher, Waterville.....	3	42	2	42	do	do	24				12
No. 5 do		Capt. Beckwith, Grand Falls....	3	42	2	41	do	do	24				12
No. 6 do		Captain Baker, Baker Brook....	3	42	2	41	do	do	24				12
No. 7 do		Captain Hartley, Florenceville...	3	42	2	41	do	do	24				12
No. 9 do		Captain Carvell, Wilmot.....	3	42	2	41	do	do	24				12
No. 10 do		Staff and Band, Woodstock.....	8		6		do	do	24				12
		Total.....	35	378	26	372							
71st Battalion...	8	Lt -Col. Marsh, Fredericton.											
No.1 Company		Captain Barker, St. Mary's ...	3	42	3	41	Sussex, N.B.	Sept. 24	12	Camp.	Average, 120 miles. do		
No. 2 do		Captain Christy, McKeen's Cr....	3	42	2	41	do	do	24				12
No. 3 do		Captain Howe, Stanley.....	3	42	2	41	do	do	24				12
No. 4 do		Captain Loggie, Fredericton.....	3	42	3	41	do	do	24				12
No. 5 do		Bt.-Maj. Alexander, Blissville...	3	42	3	40	do	do	24				12
No. 6 do		Capt. McMullen, St. Stephen....	3	42	2	41	do	do	24				12
No. 7 do		Captain Cropley, Fredericton....	3	42	3	41	do	do	24				12
		Band and Staff, Fredericton....	8		8		do	do	24	12			
		Total.....	29	294	26	286							

performed the Annual Drill for 1883-84—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act	Number of Non-exercised Men, if any.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
									Battalion.	Figure of Merit. Company.			
36 hours.	12½ cents.	Fair.	None.	Yes; 15; good.	Serviceable and very clean; accoutrements old.	Brigade drill and attack in extended order.	Yes						
24 hours.	do	Fair.	None.	Yes; drums and fife; proficiency moderate.	Serviceable and very clean; accoutrements, old.	Brigade drill and attack in extended order.	Yes.						
									Returns not yet received.				
											Oct. 4	Oct. 5	Inspected by the Maj.-Gen. commanding, who expressed himself as being much pleased.
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	do
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	
											do 4	do 5	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8—Continued.			Establishment.	Actual Strength present at inspection		Muster.			Whether in Camp or otherwise.	Miles.	Mode.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days drill performed.				
			Officers.	N.-C. O. and Men.	Officers.							N.-C. O. and Men.
St. John Rifle Company.....	...	Captain Hartt, St. John.....	3	42	3	42	St. John ....	Different dates.	12	Not in Camp.	Railway and Wagons.	

performed the Annual Drill for 1883-84—Continued.

Time required to concentrate the Battalion or Corps.	
Cost of rations per head, per diem, at encampment.	
General Conduct of Corps.	
If any, and what casualties.	
Whether in possession of Band. Number of Musicians and proficiency.	
General State of Clothing, Arms and Accoutrements.	
Nature of Movements at Inspection, and how performed.	
Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act	
Number of Non-exercised Men, if any.	
Ranges.	
Target Practice.	
Figure of Merit.	
Battalion.	
Company.	
Date of Inspection.	
Date when Drill was completed.	
REMARKS.	

2 hours.	
18½ cents.	
Good.	
None.	
No.	
Good.	
Company and extended order, manual and firing very creditable to both officers and men.	
Yes.	
Returns not yet received.	
Nov. 8	
Nov. 8	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT		Establishment.		Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 9, Lieut.-Col. J. B. TAYLOR, D. A. G. M.		Corps.		Corps.		Place.	Date	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.  Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					Place.	Date
1st Halifax Brig., Garrison Artillery.....	6 Lt.-Col. Mowbray Halifax.										
Battery No. 1...	Bt. Major Purcell, Halifax.	3	42	2	37	Halifax.....	Different dates.	12	Not in camp.		
do No. 2...	Capt. Garrison, Halifax.....	3	42	2	24	do .....		12			
do No. 3...	Capt. Curren, Halifax.....	3	42	3	42	do .....		12			
do No. 4...	Capt. Oland, Halifax.....	3	42	2	28	do .....		12			
do No. 5...	2nd Lieut. Bland, Halifax.....	3	42	1	33	do .....		12			
do No. 6...	Capt. Balcom, Halifax.....	3	42	2	31	do .....		12			
	Staff.....	7	.....	5	.....						
	Total. ....	25	252	17	195						
Pictou Garrison Battery.....	Captain Gordon, Pictou.....	3	42	.....	.....	Pictou.....	do	12	do		
Lunenburg Battery Garrison Artillery. ....	Capt. Brown, Lunenburg.. ..	3	42	.....	.....	Lunenburg.	do	12	do		

performed the Annual Drill for 1883-84—*Continued.*[illegible]

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 9—Continued.			Establishment.	Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
Mahone Bay Battery Garrison Artillery. ....		Capt. James, Mahone Bay.....	3	42	.....	.....	Mahone Bay.	Different dates.	12	Not in camp.	
Yarmouth Battery Garrison Artillery.....		Capt. Jolley, Yarmouth.....	3	42	.....	.....	Yarmouth ...	do	12	do	
Digby Battery Garrison Artillery.....		Capt. Daley, Digby.....	3	42	2	34	Digby .....	do	12	do	
63rd Battalion ...	6	Lt.-Col. Mackintosh, Halifax.									
No. 1 Company ...			3	42	2	34	Halifax. ....		12		
No. 2 do ...			3	42	2	32	do .....		12		
No. 3 do ...			3	43	3	29	do .....		12		
No. 4 do ...			3	42	3	27	do .....	do	12	do	
No. 5 do ...			3	42	2	30	do .....		12		
No. 6 do ...			3	43	1	24	do .....		12		
		Staff and Band ...	8	.....	5	28					
		Total. ....	26	252	18	200					



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment.		Actual strength present at Inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
No. 9—Continued.												
66th Battalion, Princess Louise Fusiliers.....	8	Lt.-Col. Bremner, Halifax.										
No. 1 Company		Captain Weston, Halifax.	3	42	2	36	Halifax.....		12			
No. 2 do		Captain Hart, Halifax.	3	42	1	29	do .....		12			
No. 3 do		Capt. MacKinlay, Halifax.	3	42	3	37	do .....		12			
No. 4 do		Capt. Bremner, Halifax.	3	42	2	25	do .....		12			
No. 5 do		Capt. Menger, Halifax.	3	42	2	37	do .....		12			
No. 6 do		Capt. Mitchell, Halifax.	3	42	1	32	do .....		12			
No. 7 do		Capt. W. Humphrey, Halifax.	3	42	3	25	do .....		12			
No. 8 do		Capt. R. Humphrey, Halifax.	3	42	3	37	do .....		12			
		Staff and Band....	8	.....	7	54						
		Total .....	32	336	24	302						
68th Battalion....	9	Lt.-Cl. Chipman, Kentville.										
No. 1 do		Captain Dodge, Kentville .....	3	42	1	36	Pictou.....	July 3	12			
No. 2 do		Capt. Beckwith, Sheffield Mills..	3	42	3	31	do .....	do 3	12			
No. 3 do		Captain Redden, Kentville .....	3	42	3	33	do .....	do 3	12			
No. 4 do		Capt. Steadman, Billtown .....	3	42	2	24	do .....	do 3	12			
No. 6 do		Captain Borden, Canning .....	3	42	3	30	do .....	do 3	12			
No. 7 do		Captain Harris, Aylsford .....	3	42	3	39	do .....	do 3	12			
No. 9 do		Captain Ross, Buckley Corners	2	42	2	38	do .....	do 3	12			
		Staff and Band ...	8	15	8	15						
		Total .....	35	378	25	246						
75th Battalion.												
No. 1 Company	1	Capt. Windrow, New Ross.....	3	42	2	39						
											184	Marched and railway.



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No 9—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.						Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		
69th Battalion...	9	Lt.-Col. Starratt, Paradise.									
No. 1 Company ...		Captain Elliott, Wilmot .....	3	42	3	30	Pictou .....	July 3	12		
No. 2 do ...		Captain Morse, Paradise .....	3	42	2	29	do .....	do 3	12		
No. 3 do ...		Captain Wade, Gravelle. ....	3	42	3	32	do .....	do 3	12		
No. 4 do ...		Capt Charlton, Port Nitton ....	3	42	3	27	do .....	do 3	12		
No. 5 do ...		Captain Bailey, Annapolis .....	3	42	2	34	do .....	do 3	12		
No. 7 do ...		Captain Buckler, Paradise .....	3	42	2	34	do .....	do 3	12		
No. 8 do ...		Capt. Turnbull, Bear River. ....	3	42	3	28	do .....	do	12		
No. 9 do ...		Captain Harris, Bear River .....	3	42	2	29	do .....	do 3	12		
		Staff and Band...	8	16	7	16					
		Total .....	35	378	27	259					
78th Battalions Highlanders.	7	Lt.-Col. Blair, Truro.									
No. 1 Company ...		Capt. Laurence, Truro .....	3	42	1	40	Pictou .....	July 3	12		52
No. 2 do ...		Capt Rayne, Onslow .....	3	42	2	38	do .....	do 3	12		52
No. 3 do ...		Capt Barnhill, Shubenacadie..	3	42	1	41	do .....	do 3	12		74
No. 4 do ...		Capt Smith, Windsor .....	3	42	3	41	do ...	do 3	12	do	146
No. 5 do ...		Capt. McKenzie, Mill Brook...	3	42	3	36	do .....	do 3	12		32
No. 6 do ...		Capt. Sutherland, Mount Thom...	3	42	2	35	do .....	do 3	12		32
No. 7 do ...		Capt. McLeod, New Larig .....	3	42	2	35	do .....	do 3	12		25
		Staff .....	8	.....	7	.....					
		Total .....	29	294	21	266					

performed the Annual Drill for 1883-84— *Continued.*

	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the Men of the several Corps were <i>bond file</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when Drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Figure of Merit.			
do	24 hours.											
do	19½ cents.	Very good.	None.	Yes; 21 performers; good.	Serviceable and very clean; accoutrements old.	Brigade and Battalion movements and extended order.	Yes.		Returns not yet received.	July 13	July 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
do	Very good.	None.		Yes; 16 performers; good.						July 13	July 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	
										do 13	do 14	

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT			Establishment		Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No.9 — Continued.			Corps.		Corps.		Place.	Date.	Number of days drill performed.		Miles.	Mode.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
Cumberland Provisional Batt.	5	Major Harrison, Maccan.										
No. 1 Company		Capt. Allen, Amherst.	3	42	3	42	Pictou.....	July 3	12	Camp.	103 132 124 105 131	Marched and railway.
No. 2 do		Capt. Black, River Philip...	3	42	2	38	do .....	do 3	12			
No. 3 do		Capt. Harrison, Maccan .....	3	42	3	32	do .....	do 3	12			
No. 4 do		Capt Mills, Maccan Mountain..	3	42	3	39	do .....	do 3	12			
No. 5 do		Captain Oxley, Oxford.....	3	42	3	30	do .....	do 3	12			
		Staff.....	5	.....	5	3	do .....	do 3	12			
		Total.....	20	210	19	188						
Victoria Prov. Battalion.....	5	Lt.-Col. Bingham, Baddeck.										
No. 1 Company		Capt. Cain, Baddeck .....	3	42	2	28	Pictou....	July 3	12	Camp.	241 172 160 190 182	Marched, steamer and railway.
No. 2 do		Captain McRae, Middle River...	3	42	2	37	do .....	do 3	12			
No. 3 do		Captain McNeill, Grand Narrows	3	42	3	39	do .....	do 3	12			
No. 4 do		Captain McRae, Baddeck .....	3	42	3	36	do .....	do 3	12			
No. 5 do		Captain Hill, Sydney .....	3	42	3	40	do .....	do 3	12			
		Staff .....	5	.....	5	6						
		Total.....	20	210	18	186						



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 10, Lieut.-Col. C. F. HOUGHTON, D. A. G. M.			Establish- ment.	Actual stren gth present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date	Number of days drill performed.		Miles.	Mode.
			Officers.	N. - C. O. and Men.	Officers.						
Winnipeg Cav- alry Troop ....		Capt. C. Knight, Winnipeg.....	3	42	3	32	Fort Osborne	Aug. 13	12 days drill performed in 6 days of 6 hours.	In camp at their own expense, there being no authority.	
Winnipeg Field Battery .....		Bt.-Lt.-Col. W. N. Kennedy, Winnipeg.....	6	79	4	64	Fort Osborne	July 12	24 days drill performed. *See note in column of remarks	In camp by authority of G.O., May 10, 1883.	

performed the Annual Drill for 1883-84—*Continued.*

	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed	Whether the Men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.			Date of Inspection.	Date when Drill was completed.	REMARKS.		
									Number of Non-exercised Men, if any.	Ranges.	Figure of Merit.					
															Battalion.	Company.
25 cents per diem allowed.	Good.	No allowance for rations made by Government.	Good.	None to men ; one horse badly damaged ; fully reported.	None	Good.	Field movements, route marching, skirmishing and sword exercise ; all very fairly executed.	So reported.				Aug. 13	This Company performed their target practice while in camp, but no report of result has yet been received.			
A band of 20 musicians, in a good state of proficiency.	do											Aug. 12				
General field movements and blank firing ; dismounting guns and remounting against time ; also, during the period of encampment, firing Royal Salute and shot and shell practice. All very creditably performed.	do															
Target practice returns duly forwarded to the Inspector of Artillery.																
July 12 and previous days.																
July 12													* The drill performed by the Field Battery herein reported upon, was for the two years, 1882-3 & 1883-4, which were run into one encampment. That reported upon by me last year, it will be observed, was performed in June, 1882, and was for the year 1881-2.			

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 10—Continued.			Establishment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
			Corps.	Corps.							
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Place.	Date.	Number of days drill performed.		
St. Jean Baptiste Infantry Company .....		Capt. Thibault, St. Jean Baptiste .....	3	42	1	17	St. Jean Baptiste.	Aug. 10	12 days drill.	At Company's Head Quarters, St. Jean Baptiste.	



## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 12, Lieut.-Col. J. B. TAYLOR, D. A. G. M.			Establishment.	Actual Strength present at inspection		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date.	Number of days drill performed.		Miles.	Mode.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
Brigade Garrison Artillery .....	3	Major Irving, Charlottetown.									
No. Battery .....		Capt. Rossmore, Charlottetown.	3	42	2	36	Charlottetown	Sept. 14	12		
No. 2 do .....		Capt. Moore, Charlottetown.	3	42	2	36	do	do	14	12	
No. 3 do .....		Capt. Owen, Georgetown.	3	42	2	25	Georgetown	do	15	12	
		Staff .....	5	.....	3	.....					
		Total .....	16	126	9	97					
Engineers .....	1	Major Dougherty, Charlottetown.	3	42	3	24	Milton .....	Sept. 27	12		
										In camp at Company headquarters.	
										10	Rail.
2nd Battalion...	6	Lieut.-Col. Beer, Charlottetown.									
No. 1 Company .....		Capt. Henderson, Charlottetown.									
		Royalty .....	3	42	2	25	Milton .....	Sept. 27	12		6
No. 3 do .....		Capt. Stewart, Little Goosh .....	3	42	2	35	do .....	do	27	12	9
No. 4 do .....		Major Mabou, Charlottetown.	3	42	3	30	do .....	do	27	12	9
No. 5 do .....		Capt. McLeod, Hunter River .....	3	42	3	32	do .....	do	27	12	10
No. 6 do .....		Capt. Alexander, Standhope .....	3	42	1	23	do .....	do	27	12	14
		Staff .....	6	.....	4	.....					
		Total .....	21	210	15	145					

performed the Annual Drill for 1883-84—*Continued.*

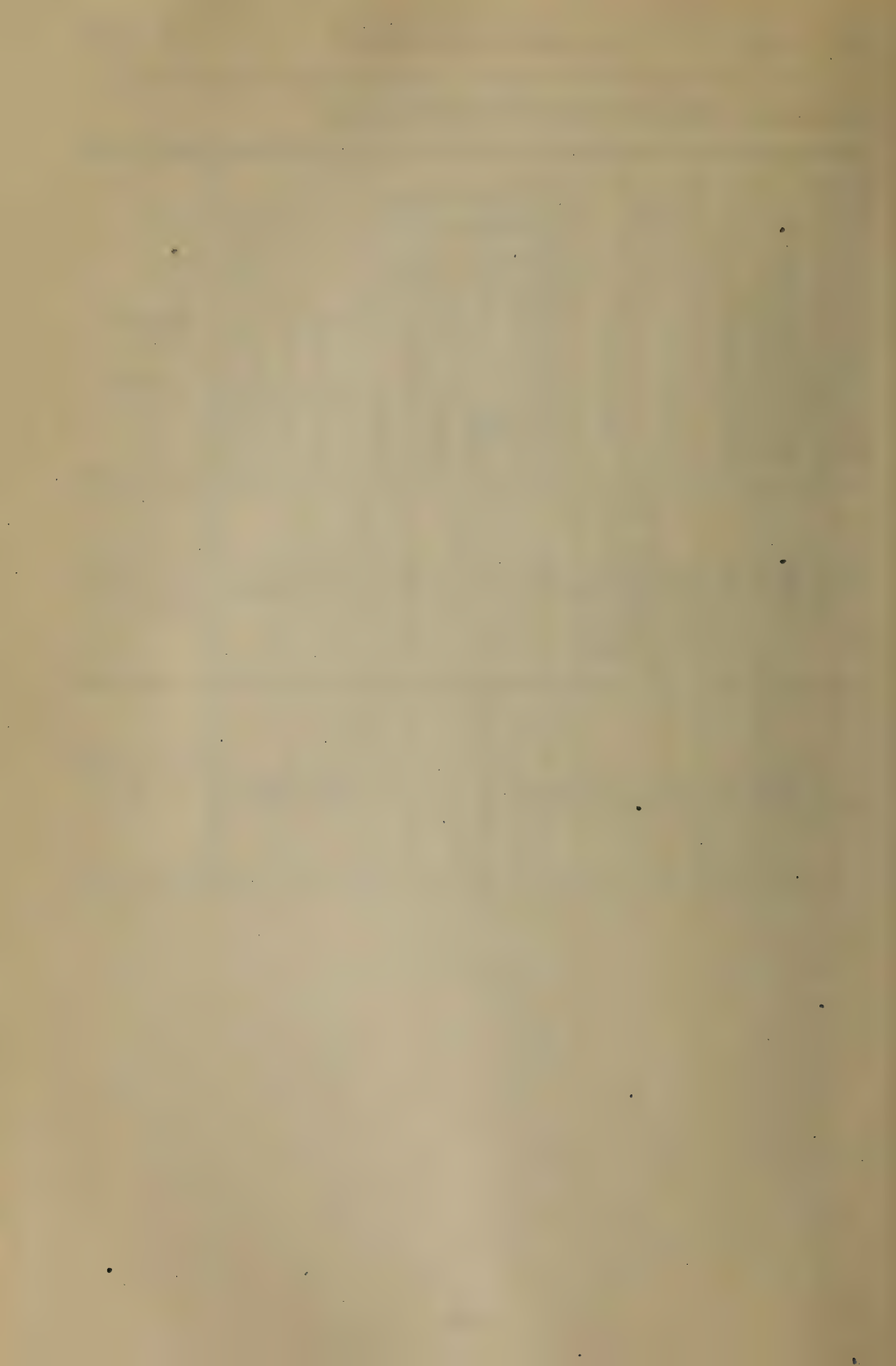
	1 day.	2 hours.			Time required to concentrate the Battalion or Corps.
	18½ cents.				Cost of rations per head, per diem, at encampment.
	Very good.				General Conduct of Corps.
	None.				If any, and what casualties.
	Yes; 16 performers; fair.				Whether in possession of Band. Number of Musicians and proficiency.
	Efficient, and all very clean.				General State of Clothing, Arms and Accoutrements.
	Marching past; company and battalion movements; manual and firing exercises; steadily performed.	Vide Report of Inspector of Engineers.		Vide Report of the Inspector of Artillery.	Nature of Movements at Inspection, and how performed.
	Yes.				Whether the Men of the several Corps were bona fide enrolled members thereof, according to the Militia Act
					Number of Non-exercised Men, if any.
					Ranges.
					Battalion.
					Company.
	Sep. 27 do 27 do 27 do 27	Sep. 27	38-03	Sep. 14 do 14 do 15	Date of Inspection.
	Sep. 27 do 27	Sep. 27		Sep. 14 do 14 do 15	Date when Drill was completed.
	Inspected by the D.A.G.	Inspected by the Inspector of Engineers.			REMARKS.

## INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 12—Continued.			Establish- ment.	Actual strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Corps.	Place.	Date	Number of days drill performed.		Miles.	Mode.	
King's County Battalion.....	1	Lieut. Fraser, Montague.....	3	42	1	15	Milton .....	Sept. 27	12	In camp.	45	Rail and wagon.
Prince County Battalion.....	1	Capt. Maxwell, Alberton .....	3	42	1	29	Milton .....	Sept. 27	12	In camp.	94	Rail.

performed the Annual Drill for 1883-84—*Continued.*

1 day.		Time required to concentrate the Battalion or Corps.	
18½ cents.	18½ cents.	Cost of rations per head, per diem, at encampment.	
Good.	Good.	General Conduct of Corps.	
None.	None.	If any, and what casualties.	
No.	No.	Whether in possession of Band. Number of Musicians and proficiency.	
do	Good.	General State of Clothing, Arms and Accoutrements.	
do	Marching past; company and battalion movements; manual and firing exercises; steadily performed.	Nature of Movements at Inspection, and how performed.	
do	Yes.	Whether the Men of the several Corps were <i>bond fide</i> enrolled members thereof, according to the Militia Act.	
		Number of Non-exercised Men, if any.	
		Ranges.	
		Battalion.	Figure of Merit.
		Company.	
Sept. 23	Sept. 23	Date of Inspection.	
Sept. 23	Sept. 23	Date when Drill was completed.	
do	Inspected by the D.A.G.	REMARKS.	



## APPENDIX No. 4

## REPORT OF THE INSPECTOR OF ARTILLERY.

OTTAWA, 5th December, 1883.

SIR,—I have the honor to submit the following reports on the general condition and efficiency of the Batteries of Field and Garrison Artillery, which performed their annual drill during the past year, and which were inspected by me or by the Assistant Inspectors of Artillery.

The Inspections throughout have been conducted on a regular system, according to the standard prescribed by the Dominion Artillery Association, in the competitions for the general efficiency prizes presented by the Marquis of Lorne, late His Excellency the Governor General.

This system lays down the number of marks to be given for each detail of drill, equipment, score made at practice, &c., and in addition gives a certain value to *viva voce* answers to previously published questions on all Artillery subjects.

In accordance with a previously concerted agreement, full marks are only given in cases of absolute, not relative, efficiency. The results, therefore, of such a searching system of inspection cannot fail to be more uniform and reliable than any other heretofore practised, and the relative efficiency, at the time, of Batteries so inspected must form a sufficiently accurate standard of comparison in all cases of Corps armed with the same weapon and drilling under the same or nearly similar conditions.

I must express my unqualified satisfaction at the manner in which so many Batteries acquitted themselves under so trying an ordeal.

The general statement of results, herewith published, enters so much into detail as to render it unnecessary for me to do more than mention briefly the general circumstances attendant on each of my inspections.

## 1ST. PROVISIONAL BRIGADE, FIELD ARTILLERY AND LONDON FIELD BATTERY.

These three Batteries were brigaded in Camp at London, under the command of Major Peters, London Field Battery, and inspected by me on 28th June. The following Officers were present:—

*London Field Battery.*

Major Peters,  
Capt. Williams,  
Lieut. Fairbank,  
Lieut. Hesketh.

*No. 1 Battery First Provisional Brigade.*

Major Nicoll,  
Capt. Murchison,  
Lieut. Davidson,  
Lieut. Crowe.

*No. 2 Battery First Provisional Brigade.*

Major Hood,  
Lieut. Macdonald,  
Lieut. Tuck.  
Surgeon McPhatter, Veterinary-Surgeons Tennant and Reed, Lieut W. Clarke,  
Adjutant.

In spite of the unfavorable state of the weather, which had been very wet previous to my inspection, all three Batteries presented a very creditable appearance (1). They were first put through a few Brigade manœuvres by Major Peters; but the limited time that can be devoted to combined drill of this description in an ordinary Brigade Camp prevented more than a moderate amount of efficiency being shown in this particular. Owing to Lt.-Col. Macdonald's unavoidable absence in connection with his duties as commanding the Shoeburyness Team, the Batteries of his Brigade were deprived of his valuable services as Commanding Officer.

#### HAMILTON, WELLAND CANAL AND TORONTO FIELD BATTERIES.

Inspected in Camp Niagara, 30th June, 1883.

Major J. Gray, Toronto Field Battery, in command.

Officers present:—

##### *Hamilton Field Battery.*

Major Van Wagner.

##### *Welland Canal Field Battery.*

Major King.

Lieut. Latimer.

Surgeon Johnson.

##### *Toronto Field Battery.*

Major Gray.

Capt. J. H. Mead.

Lieut. Beatty.

The general appearance of this Brigade was very good, and their Brigade movements were very creditably performed (2).

The Welland Canal Field Battery was only able to turn out one division of two guns, but this division was in very good order. I hope that, as this Battery has since been amalgamated with the St. Catherines Garrison Battery, next year it will turn out with its full strength of officers and men in as efficient a condition as the half Battery was this year.

The Hamilton Battery was under great disadvantages from want of officers. Major Van Wagner had only recently been promoted to its command, and Lieut. Treble, his only subaltern, was reported absent on leave. I understand that steps are being taken to complete the list of Officers.

The Toronto Field Battery was, as usual, in a very good state of efficiency. Their harness, however, was very incomplete; it has been in use since 1867.

This Battery has a good deal of extra work in connection with firing salutes for the Local Legislature, which accounts for the wear and tear of harness and equipment, which should receive a thorough overhauling and repair.

#### SHEFFORD FIELD BATTERY.

Inspected at Camp St. Johns, Que., on 3rd July.

Lieut.-Col. Amyrauld in command.

Capt. McKay.

Lieut. Neil.

Lieut. Mitchell.

Surgeon Gibson.

Veterinary Surgeon Vittie.

This Battery did not appear to such advantage as on former occasions. The harness and equipment were not in good order, and the Artillery drills were not well performed. Lieut.-Col. Amyrauld informed me that he could have had a much

better muster in the autumn had he been permitted to drill at that season, many of his best men being unable to attend.

This Battery was the only one in the Dominion, armed with rifled guns, which declined to join in the general competition at annual gun practice, held at Quebec for Batteries in that Province. There being no suitable range at St. Johns, their practice was postponed until a later date, and to take place at Granby, but I have not yet heard of its accomplishment.

#### MONTREAL FIELD BATTERY.

Inspected at Camp Montreal.

Lieut.-Col. Stevenson in command.

Capt. Green.

Lieut. Hall.

Surgeon Roger.

Veterinary Surgeon Baker.

This Battery made good use of their exceptional advantages in the use of the stables, enclosure, &c., of the Exhibition Grounds as a camping ground, their general appearance on parade being very good, and the guns, carriages, harness and equipment being in exceptionally good order. Their general knowledge of artillery exercises was also very good, and it was only in a few details of drill and driving that I noticed anything calling for special remark (3).

#### NEWCASTLE FIELD BATTERY.

Inspected at Camp, Newcastle, 6th September.

Major Call in command.

Lieut. Lawlor. Lieut. Fish. Surgeon Freeman.

Vet.-Surg. Brown.

I was glad to notice an improvement in the general appearance of this Battery—the clothing and equipment generally being in much better order than at my last inspection. The men are of very good physique and appear zealous and willing; they only seem to require more careful and systematic instruction to become very efficient.

The retention of the obsolete S. B. guns is still, as it has been previously reported, a serious drawback; and the want of any Drill Shed where lectures could be given, or voluntary drills practised, greatly impairs the efficiency of this Battery, as compared with other Corps more favourably situated.

#### GARRISON ARTILLERY.

##### *Chatham Garrison Battery.*

Inspected at Chatham, 5th September.

Lieut.-Colonel Gillespie in command.

This Battery, although previously notified of the date of my inspection, had not performed half of its annual drills, and with the exception of the physique and general appearance of the men I inspected, was in a very unsatisfactory condition.

Lieut.-Colonel Gillespie is apparently the only effective Officer, and appears to have been unable to devote the necessary time or attention required to keep his Battery in an efficient condition. Two or three N. C. Officers had attended the School of Gunnery during the past year, but had not sufficiently profited by its advantages to become really good instructors.

The 32 Pr. S. B. gun in charge is not sighted, and only mounted on a temporary platform for drill purposes.

Owing to the absence of all local facilities for gun practice, I obtained authority for a detachment to proceed to St. John and compete with the remainder of the Bri-

gade at practice, from rifled guns. I understand this arrangement was carried out with marked success, and if Col. Gillespie can succeed in obtaining the services of two active and zealous Officers, I have no doubt but that the Battery may soon become really efficient—otherwise I would not recommend its retention as an Artillery Corps.

*Prince Edward Island Provisional Brigade, Garrison Artillery*

I inspected Nos. 1 and 2 Batteries in the Drill Shed at Charlottetown, on the 15th September.

Major Irving in command.

No. 1 Battery—Capt. Passmore, Lieut. MacNeill.

No. 2 “ Capt. Moore, Lieut. Longworth.

Lieut. Ormsby, Adjutant.

I was, as on a previous occasion, very much pleased with their appearance on parade, and with their general efficiency as Artillerymen.

Each Battery mustered 32 Officers and men on parade.

A very good feeling of *esprit de corps* seemed to animate all ranks, and the various drills, both Infantry and Artillery, were performed with a smartness and intelligence which showed very careful preliminary instruction.

The small Gun Battery in the Park has been put into good order—new platforms laid down and the revetments sodded. But for an efficient Gun Battery for defensive purposes, it is entirely useless, both as regards armament, profile and situation (4).

In company with Major Irving, I inspected No. 3 Battery, at Georgetown, on the 17th September.

Capt. Owen in command.

Lieut. Stewart; 28 Officers and men.

This being a comparatively recently organized Corps, and composed mainly of men who had little or no previous Military instruction, was not in such an efficient condition as Nos. 1 and 2 Batteries. All ranks seemed, however, anxious to learn their duties, and with more careful instruction, will rapidly improve.

The Battery furnished a very good gun drill squad (5).

*Pictou Garrison Battery.*

Inspected at Pictou, 19th September.

Capt. Gordon in command.

Lieut. Davis, Lieut. Fraser, Surgeon Stewart.

This Battery, as usual, presented a very creditable appearance on parade, the uniforms being very clean and in good order, and the establishment complete. The Infantry drills and exercises were not quite up to the high standard attained at my last inspection, but were still very good; and I was glad to notice an improvement in gun drill. Much, however, remains to be acquired in this respect before this Battery is thoroughly efficient as an Artillery Corps.

The armament of the Gun Battery at Pictou is, as previously reported, quite unserviceable from a defensive point of view, and the Battery itself is entirely unprotected (6). If required to defend the harbour, much more suitable sites could be obtained nearer the entrance. Under my supervision the Battery fired a few rounds of practice ammunition, but owing to constant interruptions caused by passing vessels, the practice could not be completed during my stay. The Artillery stores, ammunition, &c., were not kept as carefully or in as good order as they ought to have been.

GENERAL REMARKS.

As previously remarked, the general condition of the Field Batteries was extremely creditable to all concerned. A great step in advance has been made by the introduction, for the first time, of gun practice at Toronto and Quebec, at the same

ranges, under the same conditions, and as nearly as possible at the same time, for all Field Batteries armed with rifled guns. At the former locality ten Batteries, and at Quebec two Batteries, performed their gun practice during the third week in September. The results were extremely satisfactory, the scores made were very good, and the resultant benefits to all who participated will, I trust, lead to this competition being continued annually with still more satisfactory results. Much credit is due to the Assistant Inspectors of Artillery—Lieuts.-Cols. Montizambert and Cotton—for the manner in which they carried out the executive details consequent upon the supervision of these competitions at Toronto and Quebec.

The system of publishing printed questions to be answered at inspection by Officers and N. C. Officers has worked very well, and the answers as a rule have shown that great pains have been taken to obtain the requisite information.

The Newcastle, Woodstock and Richmond Field Batteries are still armed with obsolete smooth bore guns, and the recently organized Field Battery at Sidney, C.B., is similarly equipped.

The three first mentioned Batteries are located at strategically important points, and in so far as drill, training and physique are concerned, are very efficient, but their equipment is obsolete and unserviceable, rendering them useless as Field Artillery on actual service, and I again recommend most strongly that at least one Battery be re-equipped each year with 9 Pr rifled guns (7).

The first edition of the Canadian Field Artillery, compiled by Lieut.-Col. now Major-General T. B. Strange, having become exhausted, I have prepared a revised edition, which is now in print and will shortly be published.

In the Garrison Artillery service a most important change has taken place in consequence of the authority which was issued to enable Batteries, whose local circumstances would permit them, to carry out their annual gun practice from rifled guns.

By using a reduced number of rounds, the expense to the Government has not been increased—whilst the resultant advantage consequent upon the use of guns whose accuracy is undoubted—whether upon the *morale* of the competitors themselves, or upon their training as Artillerymen, cannot be over estimated.

The Montreal, Quebec, St. John and Halifax Garrison Artillery, making a total of twenty-three Batteries, were enabled to join in this competition, and the general results justify me in expressing the hope that next year these advantages may be enjoyed by all the efficient Garrison Batteries in the Dominion.

As previously reported, in order to maintain the efficiency of any Battery of Garrison Artillery, I consider it absolutely indispensable that these Corps should be permitted to drill annually, and as the opportunities of obtaining a thorough knowledge of Artillery exercises are necessarily dependant upon a proper supply of *material*, I consider it would be a decided gain to this branch of the Service, were independent Batteries at outlying stations gradually absorbed and their place taken by new organizations, whose headquarters should be at the strategic centres—at Kingston, Montreal, Quebec, St. John and Halifax. When this is accomplished and efficient Regiments of Garrison Artillery are there maintained, we may hope that the increased advantages and opportunities of drill will enable them to handle efficiently the more modern and effective heavy ordnance which are required, and will doubtless be obtained, for the defence of such important points.

It cannot be too strongly represented that the present smooth-bore armament of these forts, Halifax excepted, is totally inadequate for all purposes of defence against the more modern rifled guns with which even the smallest gun-boat used in the attack would most certainly be armed. And therefore, it becomes my duty to point out the necessity of making such annual provision in the estimates as will provide for the gradual acquirement of the rifled ordnance required for their efficient defence (b).

During the past year an Artillery Team proceeded to Shoeburyness for the purpose of joining in the National Artillery Association competitions.

The Team was composed as follows, viz.:—

Lieut.-Colonel A. H. Macdonald, Commanding 1st Provincial Brigade Field Artillery, in command.

Major Short, B Battery, Canadian Artillery Regiment, Adjutant.

Gentlemen Cadets, R. M. College..... 2 N. C. officers and men.

Regiment Canadian Artillery..... 5 “ “

Field Batteries, Active Militia..... 6 “ “

Garrison “ “ “ ..... 8 “ “

Total..... 2 Officers and 21 N. C. Officers and men.

Although the Team were unsuccessful in obtaining a place on the prize list for firing competitions, yet the scores made by them were very good, and their want of success is only attributable to their want of sufficient previous instruction and practice, a want, which from the circumstances of the case, must always be experienced until arrangements can be made for the Team, as such, to pass through a regular course of preliminary training.

In the shifting ordnance competition for the prize offered by His Excellency the Governor General, the Team was successful in obtaining the much coveted prize. It was competed for by numerous well trained detachments, and was well and fairly won.

In his general report on the meeting at Shoeburyness, the Commandant of the School of Gunnery, Colonel Fox-Strangways, R. A., refers to the Canadian Team in the following words: “A special repository prize given by His Excellency the Governor General of Canada, was won by the Canadian detachment, and I take this opportunity of saying that this detachment, which was in Camp for three weeks, won the admiration of us all by their soldier-like bearing and spirit.”

The Camp Commandant, Lieut.-Col. Lewes, R. A., writing on the same subject, remarks: “Of the conduct and example of the Canadian Team I cannot speak too highly.”

Such praise, from impartial and experienced judges, cannot fail to give the greatest satisfaction to the Artillery Force of the Dominion, and must act as a powerful stimulus towards increased efforts to attain complete efficiency (9).

#### BRIGADE OFFICE,

HALIFAX, N. S., 1st December, 1883.

SIR,—I have the honor to report, for information of the General Officer Commanding the Militia, that under your authority of date 5th November last, I inspected the Lunenburg Battery Garrison Artillery on the 28th November last, at their Headquarters.

The Battery had occupied its twelve days in Infantry Drill, and was remarkable principally for the quality of the men (being all respectable mechanics), for their steadiness, and the completeness and good order of the uniform and equipment issued to them. They have never received any great-coats, and the day being cold, the want of them was very much felt. There were thirty eight (38) all ranks present, three absent with leave having completed their drill.

Under the Captain, the Lieutenant, and one of the Sergeants, a number of sections of Company drill were fairly gone through. Open order and general salute, marching to front and rear, wheeling on the march, formation of fours, files and fours forming to the front, rear to the right and left and to the right and left about, inspecting and proving Company, instruction appeared confined to this, and I proceeded no further. The absence of systematic and qualified instruction was apparent, and one of the N.-C. Officers has, since inspection, signified his intention of qualifying with a view to obviate this difficulty.

A portion of the Band of the 75th Battalion attended and played at the inspection.

The Battery was mustered in compliance with the conditions on the acquittance, and all the names were contained in the Service Rolls.

I consider the efficiency of the Battery is such as to entitle them to pay and allowances.

Respectfully submitting which,

I have the honor to be, Sir,

Your obedient servant,

J. R. MACSHANE, Lieut.-Col.

Brigade-Major Military District No. 9.

The Deputy Gen., Mid. Dist. No. 9.

(Memo.)

From its isolated position, with reference to nearest strategically defensible position, I would recommend that this Corps, at present only nominally an Artillery one, should be reorganized as Infantry, and amalgamated with the nearest Battalion (10).

D. T. IRWIN, Lieut.-Col.

Inspector of Artillery.

Ottawa 7th December, 1883.

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NOTES BY MAJOR-GENERAL COMMANDING.

- (1) I was much pleased with these Batteries.
  - (2) These Batteries turned out very creditably.
  - (3) I saw this Battery, and consider them in a most creditable state.
  - (4) It is a sad pity not to have effective guns for efficient men.
  - (5) This displays how necessary it is for an Artillery Corps to have guns in which they can take *real interest*.
  - (6) So important a harbour should have proper defensive forts and effective guns.
  - (7) Most strongly recommended.
  - (8) I quite concur.
  - (9) It has afforded me much pleasure to read these favourable reports from Imperial Officers.
  - (10) I concur.
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## LIEUT.-COL. MONTIZAMBERT'S REPORT.

SIR,—I have the honor to report that, in accordance with your orders, I have, during the present year inspected the following Batteries of Artillery in the Province of Ontario:

*Field.*

The Ottawa, Gananoque, Kingston and Durham.

*Garrison.*

The Sarnia and Collingwood.

*Ottawa Field Battery.*

Major John Stewart, commanding.

Inspected in Brigade Camp at Brockville, Lieut.-Col. Maunsell, District Adjutant General, Military District No. 4, in command, 6th July.

Officers present:—

Major John Stewart (R. S. G., special).

Capt. Thos. Evans (R. S. G., 1st).

Lieut. D. C. F. Bliss (R. S. G., special).

Surgeon W. R. Bell.

Lieut. W. J. Stewart and Vet. Surgeon J. Harris were on leave.

I was much pleased with the turn-out and general work of this Battery, which maintains its high state of efficiency. Equipment still incomplete (1).

*Gananoque Field Battery.*

Inspected with the Ottawa Battery in Brigade Camp at Brockville on the 6th of July.

Officers present:—

Major W. Mackenzie (G. S. 1st) commanding.

Capt. C. E. Britton (G. S. 1st).

Lieut. G. Gillies (G. S. 1st).

Lieut. T. S. Shields (Prov.)

Surgeon E. H. Merrick.

Vet. Surgeon John Waldie.

This Battery also turned out well this year. Their marching past, field manoeuvres, gun drill and dismounting ordnance were all good.

Both Batteries worked well in Brigade and were very smart in coming into action and changing front.

*Kingston Field Battery.*

Seen by the Major-General Commanding in Camp, at Cobourg, on the 21st September, Lieut.-Col Villiers, D. A. G., 3d Military District, Commandant.

They were afterwards seen by me in Brigade with the Durham Field Battery, and put through the usual annual examination. As will be seen by the parade state herewith, this Battery was very weak on parade this year, and the guns were not properly horsed (2). I was told that this was on account of the time of year, when so much farm work had to be done. What men were there were smart and efficient. Harness repaired since last training, but not so clean as it should have been. The Carriages are in much better order. This Battery was only taken over by Capt. P. G. Wilmot a few days before they went into Camp, and I have no doubt I shall be able to make a much more favourable report next year (3).

Officers present:—

Capt. P. S. Wilmot, (G.S. 2nd.)

“ Wm. Drennan (G.S.)

Lieut. J. A. Wilmot.

“ Kent.

Surgeon H. J. Saunders, M.D.

They were instructed during training by Surgeon Instructor A. Lyndon, B. Battery, Royal School of Gunnery.

The detachment of this Battery made a high score at gun practice at the Toronto meeting.

*Durham Field Battery.*

Inspected with the Kingston Field Battery in Camp at Coburg, on the 21st September.

Officers present :—

Capt. W. McLean (G.S. 1st.)

Lieut. Thos. Bensen (G.S. 2nd.)

“ G. Sanderson (G.S. 1st.)

Surgeon T. H. Brent, M.D.

This Battery turned out very well this year; they are well up in field manœuvres and drill; they had a particularly fine lot of horses, and the guns and horses were in fair order (4.) They were reviewed by the Major-General Commanding. Sergeant Strange “B” Battery, Royal School of Gunnery, assisted in the instruction during the training.

REMARKS.

All the Field Batteries in Ontario sent detachments for gun practice at Woobine Park, Toronto, where an excellent range was obtained, and the conditions of the competition were much more equal than in former years. I have submitted a special report.

I have to repeat my remarks of last year, about trousers and shoes (5) worn in many cases by mounted men, and also the absence of spurs and sword knots.

The Corps of Field Artillery I had the honor to inspect, seem steadily improving each year.

Major Taschereau, “B” Battery, R.S.G., acted as Range Officer, and Sergeant Major C. Lavie, with a squad from “B” Battery, performed all the arduous duties of the Camp and Range in a most satisfactory manner.

GARRISON BATTERIES.

*Sarnia Garrison Battery.*

Capt. Chas. S. Ellis (G.S. 1st.)

Lieut. J. J. Clement.

“ F. N. Kittermaster.

Inspected, September 26th.

This Battery turned out in full strength and were very clean and soldier-like. Their rifles, accoutrements and clothing are in excellent order (6).

They are a fine body of men, but have not facilities for becoming gunners, having no drill shed, and training only once in two years, even their Company drill was naturally indifferent (7).

It has long been intended to change this Battery into an Infantry Corps. They did not practice, having no stores or side-arms for the two 32 Prs. Even these guns are not in their charge, and are full of stones.

*Collingwood Garrison Battery.*

Lieut. Colonel Jno. Hogg, Commanding.

Lieut. Birnie, (G.S.)

Lieut. Cox.

Inspection on the 29th September. Gun practice on the 29th and 1st October. A heavy storm making it necessary to discontinue and Sunday intervening. Firing was from a 32 Pr, S. B. in a small pallisade on the lake shore, over a water range.

Practice and gun drill fair. Marching drill not what it might be, but they only get a few days every other year (8).

The men are of fine physique, though the Battery paraded for inspection rather weak. Clothing, arms, &c., in good order. They are kept in an armoury off the drill Shed, which wants repairs very badly. If they had a gun in this shed, they say they would drill in the evenings, but I understand it is intended that they also are to be changed into Infantry. Captain Farley acted as Range Officer. Surgeon Stephens acted as Medical Officer.

This Battery competed for the Governor General's prize this year. They are full of zeal as gunners, but their side arms are worn, and they have nothing to work with at anything but standing gun drill.

I inspected the St. Catherine's Division of the Welland Field Battery, Major F. King commanding, on the 27th December.

This Half-Battery was under the immediate command of Captain Wiley.

Officers present:—

Major King,

Captain Wiley, (G. S. 1st),

Lieut. A. B. Clenning, (G. S. 2nd),

41 non-comm'd officers and men.

These men paraded on foot, having been only lately raised, (partly transferred from the St. Catharines Garrison Battery).

Two 9 prs. had been sent up from headquarters, and the men showed that good use had been made of them for drill purposes during the short time they have had to learn.

Standing gun drill, very good.

Answers to questions on material, etc., fair.

Dismounting gun and carriage, good.

Sword drill, fair.

A fine body of young men. Uniforms and accoutrements, such as they have, in fairly good order.

The men wore forage caps.

The two guns had been sent up in drill order, they were clean, but I cannot report on equipment generally.

A room has been made in a corner of the drill shed to contain the guns, clothing, harness, etc. It will be difficult to keep them in proper order, unless a chimney is constructed, so that a fire may be put on in damp weather.

Lieut.-Col. Denison, Dep. Adj't Gen'l Mil'y District No. 2., mustered the men after inspection.

#### *Forts at Kingston.*

The forts, towers and barracks still require repairs: Little or nothing has been done since my last report (9). Repairs are now going on at the Tête-de-Pont Barracks. Estimates for these things have been made out.

#### *Armaments.*

The armaments and warlike stores in the different forts and towns in Artillery charge are regularly inspected and reported on, and are in good order.

#### REMARKS.

##### *Field Batteries.*

I beg again to repeat my remarks of last year as to increasing the number of horses per gun.

##### *Garrison Batteries.*

The Garrison Batteries reported on by me have not, in the existing nature of things, much chance of becoming efficient (10).

General parade state of all the Batteries that I inspected this year, and scale of credits for Governor General's efficiency, prize are annexed.

I have the honor to be, Sir,

Your obedient servant,

C. E. MONTIZAMBERT,

Lieut. Colonel,

Assistant Inspector of Artillery.

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NOTES BY MAJOR-GENERAL COMMANDING.

- (1) An important requirement.
- (2) This Battery was disappointing, coming, as it does, from the Head quarters of a School of Gunnery.
- (3) I certainly hope that there may be for their state in Camp was very far from creditable.
- (4) This Battery is certainly improved since I first saw them.
- (5) Long boots ought to be supplied to Drivers and Blucher boots to Gunners.
- (6) Satisfactory.
- (7) I beg to call attention to this state of things.
- (8) This displays how annual drill is wanted.
- (9) I beg to call attention to this.
- (10) I beg to call attention to this.

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 LIEUT.-COLONEL COTTON'S REPORT.
 

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## ROYAL SCHOOL OF GUNNERY,

CITADEL, QUEBEC, 23rd November, 1883.

SIR,—I have the honor to forward you herewith my reports on the Field and Garrison Batteries, inspected by me during the present year.

These Corps all maintained their efficiency, and some are in a highly creditable state.

I append the marks awarded at inspection, in accordance with your instructions, by which a fair comparison of efficiency may be judged.

Nearly all the Garrison Batteries have this year carried out their annual practice from 64-pr. R.M. L. guns, and with very good results.

Capt. Wilson, Commanding "A" Battery, Regt. C. A., inspected the Richmond Field Battery and the Gaspé Garrison Battery. His reports are herewith attached.

I desire again most strongly to recommend the issue of more modern equipment to the Richmond, Woodstock and Newcastle Field Batteries (1).

Since my inspection, a class of instruction under charge of Staff Sergt. Instructor W. N. King, "A" Battery, C. A., has been formed at Halifax for the benefit of the 1st Halifax Garrison Artillery.

A similar class was held in Montreal in connection with Lieut. Col. Oswald's Brigade, and with most satisfactory results. Staff Sergt. Instructor W. Mawhinney, "A" Battery, C. A., acted as Instructor.

It is hoped that in the following year *all* Garrison Batteries will be detailed for drill (2).

I have the honor to be, Sir,

Your obedient servant.

W. H. COTTON, Lieut.-Colonel,

Assistant Inspector of Artillery.

To the Inspector of Artillery,  
Ottawa.

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*Quebec Field Battery.*

Inspected in Brigade Camp, Lévis, on the 5th and 6th days of July.

Major Crawford Lindsay (G.S. 1st) in command.

Capt. C. P. Dean do

Lieut. Garneau do

Lieut. Thibaudeau do

Veterinary Surgeon Hall.

On the 5th July the Battery was inspected at standing gun drill, disabled ordnance, mounting and dismounting ordnance, answers to questions, and on the 6th in field manoeuvres, sword exercises and marching past.

The Major-General Commanding was present on the 6th. Four detachments took part in the dismounting and disabled ordnance, which was also done with reduced numbers by all four detachments (3).

The Battery is very efficient, and discipline good (4). Horses good.

Practice was carried on at the Island of Orleans, on the 20th September.

I append credits given at inspection.

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*Woodstock (N.B.) Field Battery.*

Inspected in Camp at Woodstock on the 27th September.

Major Dibblee (G.S. 1st). in command.

Capt Lynch (G.S. st).

Lieut. Emory (G.S. 1st).

Lieut. Garden (G.S. 1st).

Surgeon Smith.

Vet. Surgeon Gilman.

Horses very good. Gun drill and field manoeuvres fair. The harness requires some slight repairs. The equipment of the Battery is old, obsolete, and the gun carriages unserviceable (5).

Practice carried on at Woodstock on the 28th September. The axletree boxes had to be removed during practice, to prevent them *being shaken off* (6).

I append credits given at inspection.

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CITADEL, QUEBEC, November 24th, 1883.

SIR,—I have the honor to report that, in accordance with your instruction I inspected the Richmond Field Battery at Melkville, P.Q., on the 5th October 1883.

The weather had been so unfavorable during the whole of their training, that it was impossible to form a fair estimate of their efficiency.

Being armed with 24-pounder Howitzer's, and the ground in such soft condition from the heavy rains, I was unable to see them in any field movements.

Their standing gun drill was good. Harness in a fair condition. Horses somewhat undersized.

The Officer commanding this Battery reported that he had been frequently promised to have the armament of his Battery changed to more modern equipment, but as yet nothing had been done (7).

The Officers present were :

Major, Hon. H. Aylmer, Commanding.

Lieut. Critchley (1st Class S.C., R.S.G.).

Lieut. Stevens.

Dr. Brown.

I append credits given at inspection.

I have the honor to be, Sir,

Your obedient servant,

J. F. WILSON, Captain,  
Commanding "A" Battery.

To the Assistant Inspector of Artillery,  
Quebec.

*No. 2 Battery, Lévis Garrison Artillery.*

Inspected at Engineers' Park, Lévis, on the 28th August, 1883.

Present on parade:—

1 Capt. Vien, (G.S., 1st) in command.

1 Lieut. Houde, (G.S., 1st.)

3 Sergeants.

3 Corporals.

1 Trumpeter.

25 Gunners.

—  
34 Total present at inspection.  
=

Clothing and accoutrements clean and in fair order. Company drill good.

Manual and firing exercise fair.

Standing gun drill, 24 Pr. S.B., two detachments—one good, the other fair.

This Battery is composed of a fine body of young, intelligent men.

The Annual Practice was carried out on the Island of Orleans, from the 64 Pr. R.M.L. Gun, on the 23rd August.

*St. John (P.Q.) Garrison Battery.*

Inspected on the 14th September, 1883.

Major Drumm in command

Lieut. Tenny.

“ Futroye, absent without leave.

Present on parade:—

1 Captain.

1 Lieutenant.

2 Sergeants.

1 Corporal.

1 Bugler.

25 Gunners.

The arms, clothing and accoutrements were in perfect order—evidently well cared for (9).

Company drill and manual and firing exercise, fair.

Standing gun drill good.

Practice was carried on from 24 Pr. Gun.

I append credits given at inspection.

*No. 1 Battery, Lévis Garrison Artillery.*

Inspected on the 22nd September at No. 2 Fort, Lévis.

*Present on Parade.*

Major Hamel, (G.S. 1st) in command.

Lieut. Martineau.

Present on parade:—

1 Captain.

1 Lieutenant.

3 Sergeants.

3 Corporals.

3 Bombardiers.

1 Trumpeter.

27 Gunners.

Clothing in poor order, rifles and accoutrements in very bad state (10). Special report was made at the time to D. A. G., Military District No. 7, of this matter.

Company drill and manual and firing exercise fair.

Standing gun drill good.

Practice carried out at Island of Orleans from 64-pr. R.M.L. gun on 22nd August. I append credit given at inspection.

*New Brunswick Brigade Garrison Artillery.*

Inspected at Fort Dufferin on the 8th and 9th of October.

Lieut.-Col. Foster in command.

Staff Officers.....	7	Staff Sergeants.....	5
No. 1 Battery (officers)....	3	N.-C. O and men.....	36
“ 2 “ .....	2	“ “ .....	35
“ 3 “ .....	1	“ “ .....	17
“ 9 “ .....	2	“ “ .....	30
“ 10 “ .....	2	“ “ .....	30
	<u>17</u>		<u>153</u>

No. 7 Battery were to have been inspected at their Battery Headquarters, Chatham. A detachment of this Battery arrived at St. John on the 9th, and performed their annual practice. Clothing, arms and accoutrements in good order. Company drill and manual and firing exercise fair. Some Officers were unable to put their Batteries through the manual and firing exercises (11). Gun drill good. The annual practice was carried out from 64-pr. R.M.L. guns under my supervision from Fort Dufferin on the 8th and 9th. There was a very efficient drum and fife band present at inspection (12). Lieut.-Col. Fisher, for many years in command of this Brigade, is retiring at the end of the year. He is to be congratulated on the state in which he hands it over. I append credit given at inspection.

Major and Bt.-Lieut.-Col. G. H. Pick and Lieut. G. F. Cole were absent without leave. The Commanding Officer reports that these Officers have been so absent for some years (13).

*Yarmouth Garrison Battery.*

Inspected at Yarmouth on the 11th October.

Captain T. R. Jolly in command.

Present on Parade:—

1 Captain.

3 Sergeants.

25 Rank and file.

Clothing, arms and accoutrements in good order. Gun drill good. Company drill and manual, and firing exercises fair (14).

Owing to heavy fog, the practice could not be carried out during my inspection, but has since been performed. Two guns of this Battery are badly spiked and have been specially reported on.

I append credits given at inspection.

*1st Halifax Brigade Garrison Artillery.*

Inspected at Point Pleasant Battery on the 16th, 17th and 18th October.

Lieut.-Col. Thomas Mowbray in Command.

*Present on Parade :*

Staff Officers.....	2		
No. 1 Battery (officers) . . . .	2	N.-C.O and men.....	23
“ 2 “ “ .....	1	“ “ .....	14
“ 3 “ “ .....	3	“ “ .....	32
“ 4 “ “ .....	1	“ “ .....	12
“ 5 “ “ .....	1	“ “ .....	12
“ 6 “ “ .....	1	“ “ .....	10
<hr/>		<hr/>	
Total.....	11	Total.....	103

A falling off in numbers from last year.

Clothing, arms and accoutrements in good order. Company drill, manual and firing exercise good. Gun drill good.

As the Brigade did not parade as a whole, there was no Battalion drill. The annual practice was carried on from Point Pleasant Battery, from 64-pr. R.M L. guns, under my supervision on the 16th, 17th and 18th. I would recommend that a Class of Instruction be formed at Halifax\* for the benefit of the Brigade, at which Officers and N. C. officers can qualify for certificates.

I append credits given at inspection.

NOTE—Has been sanctioned and is now in progress.

To the Assistant Inspector of Artillery,  
Quebec.

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QUEBEC GARRISON ARTILLERY.

Inspected at Quebec on the 5th April.

Nos. 1, 2 and 3 Batteries, commanded by Capts. Roy, Boulanger and Morgan, respectively.

These Batteries are all very efficient. Clothing, arms and accoutrements in good order.

Lieut. Lortie, of No. 2 Battery, was reported absent without leave.

These Batteries performed their annual practice with 64-pr. R. M. L. guns at the Island of Orleans, on the 22nd and 33rd days of August.

I append credits given at inspection.

CITADEL, QUEBEC, 24th November, 1833.

SIR,—In accordance with your instructions, I inspected the Gaspé Battery of Garrison Artillery on the 14th November, 1833.

I have the honor herewith to forward my report on the same.

Capt. and Br.-Major Slous, commanding. 1st Class L. C., R. S. G.

1st Lieut. Carter, 1st Class S. C., R. S. G.

2nd Lieut. Annett (P).

This last-named officer has just been promoted from the rank of Sergt.-Major, and as yet has no uniform.

I found the men of magnificent physique, intelligent, and anxious to improve themselves in their Military duties.

In my inspection I was guided by D. A. A. rules, Circular 49.

Clothing and accoutrements, good. Company drill, fair. Manual and firing exercises, good. Standing gun drill, very good.

In the answers to printed questions, both the Officers and N.-C. Officers were very well up.

I superintended the shot and shell practice from two 24-pr. S. B. guns, mounted on iron standing carriages, no elevating screws and no wooden tangent scales. Score, 197.

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*Parade State.*

- 1 Major, commanding.
- 2 Lieutenants.
- 3 Sergeants.
- 3 Corporals.
- 28 Gunners.

I mustered the men and forwarded pay list to D. A. G., Military District No. 7.  
I append credits given at inspection.

I have the honour to be, Sir,

Your obedient servant,

J. F. WILSON, Captain,  
Commanding "A" Battery.

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NOTES BY MAJOR-GENERAL COMMANDING.

- (1) Recommended.
- (2) Recommended if money be forthcoming.
- (3) I was very glad to see this Battery continue in in its highly creditable condition.
- (4) I consider Major Crawford Lindsay a most valuable Officer, full of zeal.
- (5) The men of this Battery *deserve* to be supplied with better guns.
- (6) A sad state of carriages.
- (7) I beg to call especial attention to this.
- (9) Very satisfactory.
- (10) Unsatisfactory.
- (11) Unsatisfactory.
- (12) The knowledge of Officers is of more importance than music.
- (13) Should be struck off.
- (14) Satisfactory.

## CREDITS AWARDED EACH BATTERY FOR GENERAL EFFICIENCY.

## GARRISON BATTERIES.

Name of Battery.	Officer Commanding.	Inspecting Officer.	Clothing and Accoutrements.					Manual and Firing Exercises.		Standing Gun Drill.	Answers to questions by		Each Officer and Man with an Artillery Certificate.	Each Man with an Efficiency Badge.	Discipline and Interior Economy.	Total.	
			Full Credits..					Company Drills.	Company Drills.		Officers.	N. C. Officers.					
Collingwood Battery.....	Lt.-Col. Hogg...							7	3	9	8	25	.....	.....	.....	10	
Sarnia do .....	Capt. Ellis .....	Lt.-Col. Montizambert						9	3	8	17	4	.....	.....	.....	72	
No. 1 Battery, Montreal Brigade.	do do .....	do .....									.....	.....	.....	.....	.....	29	
2 do .....	do do .....	District Staff.									.....	.....	.....	.....	.....	.....	
3 do .....	do do .....										.....	.....	.....	.....	.....	.....	
4 do .....	do do .....										.....	.....	.....	.....	.....	.....	
5 do .....	do do .....										.....	.....	.....	.....	.....	.....	
6 do .....	do do .....	Major Wilson.									.....	.....	.....	.....	.....	.....	
Gaspé Battery .....	Major Slous .....										.....	.....	.....	.....	.....	.....	
No. 1 Battery, Québec .....	Capt. Roy .....										.....	.....	.....	.....	.....	.....	
2 do .....	do Belanger .....										.....	.....	.....	.....	.....	.....	
3 do .....	do Morgan .....	do do .....									.....	.....	.....	.....	.....	.....	
No. 1 Battery, Lévis .....	Major Hanel .....	do do .....									.....	.....	.....	.....	.....	.....	
2 do .....	Capt. Vien .....	do do .....									.....	.....	.....	.....	.....	.....	
No. 1 Battery, N. B. Brigade .....	do Kane .....	do do .....									.....	.....	.....	.....	.....	.....	
2 do .....	do Ring .....	do do .....									.....	.....	.....	.....	.....	.....	
3 do .....	do Ewing .....	do do .....									.....	.....	.....	.....	.....	.....	
7 do .....	Lt.-Col. Gillespie .....	District Staff.									.....	.....	.....	.....	.....	.....	
9 do .....	Capt. Lander .....	Lt.-Col. Cotton .....									.....	.....	.....	.....	.....	.....	
10 do .....	do Armstrong .....	do do .....									.....	.....	.....	.....	.....	.....	
No. 1 Battery, 1st Brigade, Halifax	do .....	do do .....									.....	.....	.....	.....	.....	.....	
2 do .....	do .....	do do .....									.....	.....	.....	.....	.....	.....	
3 do .....	Capt. Curran .....	do do .....									.....	.....	.....	.....	.....	.....	
4 do .....	do .....	do do .....									.....	.....	.....	.....	.....	.....	
5 do .....	do .....	do do .....									.....	.....	.....	.....	.....	.....	
6 do .....	do .....	do do .....									.....	.....	.....	.....	.....	.....	
Yarmouth Battery .....	Capt. Jolly .....	do .....									.....	.....	.....	.....	.....	.....	

\*Lt.-Col. Oswald, Commanding Brigade.

Owing to all the arms, equipment and artillery stores of this Brigade having been placed in store, on account of their armoury and drill shed being dismantled, no artillery inspection was possible.

Lt.-Col. Foster, Commanding Brigade.

Drill not completed in time for artillery inspection.

Lt.-Col. Mowbray, Commanding Brigade.

No 1 Battery, P.E.I. Brigade.....	do	Pasmore.....	Lt.-Col. Irwin.....	8	7	7	22	18	16	3	8	89	Major Irving, Commanding Brigade.
2 do .....	do Moore.....	do .....	do .....	8	7	7	21	18	11	2	8	82	
3 do .....	do Owen.....	do .....	do .....	6	6	6	15	19	17	.....	6	74	
St. John's, P. Q., Battery.....	Major Drumm.....	do .....	Lt.-Col. Cotton.....	7	6	6	18	.....	.....	.....	8	45	
Pictou Battery.....	Capt. Gordon....	do .....	Lt.-Col. Irwin.....	8	7	7	18	6	9	4	8	69	Drill not completed in time for artillery inspection.
Digby .....	do Daley .....	do .....	District Staff.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

## CREDITS AWARDED EACH BATTERY FOR GENERAL EFFICIENCY.

FIELD BATTERIES—9 POR. M. L. R. GUNS.

Name of Battery.	Officer Commanding Battery.	Inspecting Officer.	Answers to questions by										Remarks.				
			N. C. Officers.														
			Clothing and Accommodations.	Guns, Carriages and Equipment.	Horses.	Harness and Harnessing.	Marching Past.	Standing Gun Drill, Position and General Duties.	Officers.	N. C. Officers.	Field Manœuvres.	Sword Drill by Mounted Officers and N. C. Officers.	Dismounted and Disabled Ordnance.	Discipline, including Camp- ing Details.	One-fifth Total Score at Com- petitive Practice.	Total.	
			Full Credits...	10	10	10	15	10	25	40	48	25	5	10	10		
Quebec Field Battery .....	Major Lindsay .....	Lt.-Col. Cotton .....	9	10	8	13	10	25	40	43	25	20	4	10	10	93	2 295
Montreal do .....	Lt.-Col. Stevenson .....	do Irwin .....	10	10	10	14	8	20	24	29	18	4	9	9	88	4 252	
No. 1 Battery, 1st Brigade .....	Major Nicoll .....	do do .....	9	8	7	10	7	20	23	31	20	5	8	8	89	250	
do do .....	do Hood .....	do do .....	9	8	9	12	8	22	23	38	18	4	9	6	71	8 236	
Ottawa Field Battery .....	do Stewart .....	do Montizambert .....	9	8	8	13	9	22	28	22	23	3	9	10	68	6 232	
Welland Canal Field Battery .....	do King .....	do Irwin .....	10	9	10	13	8	22	9	17	20	2	6	9	88	8 223	
London Field Battery .....	do Peters .....	do do .....	8	6	10	10	7	18	22	25	16	3	5	7	79	8 216	
Toronto do .....	do Gray .....	do do .....	9	8	10	10	8	20	11	12	22	3	8	9	70	2 212	
Durham do .....	do McLean .....	do Montizambert .....	9	8	10	13	8	21	14	13	22	4	5	10	69	2 209	
Gananoque do .....	do do .....	do do .....	9	7	9	12	9	20	31	19	21	2	8	10	44	8 202	
Kingston do .....	Capt. Wilmot .....	do do .....	8	8	5	12	7	15	17	12	20	2	6	10	77	4 201	
Hamilton do .....	Major Van Wagner .....	do Irwin .....	7	9	8	12	8	22	8	31	20	2	9	4	58	8 200	
Sheffield do .....	Lt.-Col. Amyrauld .....	do do .....	9	5	8	8	6	15	27	11	16	*	7	7	.....	.....	

Only 3 Battery at Inspection parade.

## 9 POR. SMOOTH BORE GUNS.

Newcastle Field Battery	Major Call.....	Lt.-Col. Irwin.....	9	6	9	12	8	18	22	18	*	**	6	42	6	168	6
Woodstock do	do Dibblee.....	do Cotton.....	7	5	10	7	9	15	36	13	18	2	**	5	5	5	5
Richmond do	do Aylmer.....	Capt. Wilson.....	8	5	5	10	5	20	12	14	*	2	**	5	5	5	5

\* Failed to show proficiency.

† Lt.-Col. Macdonald, Commanding Brigade.

\*\* Owing to nature of Equipment could not compete.

## APPENDIX No. 5

## ANNUAL REPORT ON THE REGIMENT OF CANADIAN ARTILLERY.

OTTAWA, December, 1883.

SIR,—I have the the honor to report that since my appointment to the command of this Regiment, on the 10th August, I have made a close and detailed inspection of both the Batteries of which it is as present composed, and of the Royal Schools of Gunnery attached thereto.

1. The results of my inspections have satisfied me that, with the exception of a few minor points of detail in the administration of interior economy, in which a difference of practice has existed, the system pursued in each Battery is in strict accordance with the Regulation and Orders for the Militia and with the Queens' Regulations.

The publication of revised Standing Orders for the Regiment will insure for the future an exact uniformity in all matters of administrative detail.

2. The system of instruction has, however, not been so uniform as is desirable, and in consequence I found it necessary to issue a Syllabus of Instruction, applicable to all ranks at the Royal Schools of Gunnery. (*Vide* Regimental Orders herewith). The very important share in the instruction of Officers, N.-C. Officers and men attached to these Batteries, which devolves upon the Officers belonging to the Regiment, does not seem to have been as universally recognized as it should have been, and as any failure in this respect reacts, not only upon the nature of the instruction given, but also upon the general estimation in which these Schools are held, it is of the greatest importance that all first appointments to the permanent establishment of Officers of the Regiment should not only be of such a provisional nature as to depend upon ultimate qualification, but should also have especial reference to the fitness and ability of the individual to acquire and impart the necessary instruction, and to maintain in a proper manner the position which a commission in this *Corps d'élite* necessarily involves.

3. I regret to report that very great difficulty is experienced at Quebec in obtaining a sufficient supply of eligible recruits, the Battery stationed there having been from 10 to 20 under its authorized establishment throughout the year. At Kingston, from its more central situation, there is naturally not such difficulty in obtaining recruits, but Lieut.-Col. Montizambert reports that the best class of young men do not come forward, and there is no doubt but that owing to the present state of the labour market and existing rate of wages, the pay offered to soldiers is not sufficient to induce the better class to enlist.

The statistics of military crime, desertions, &c., universally show that the expense to the Government, consequent upon the maintenance of military prisoners, and loss of equipment, &c., more than counterbalances the small increase of pay which would suffice to induce men of good character to adopt the service as their profession, and the resultant benefits accruing to Corps whose present most important duties are connected with the instruction of others, will, I trust, induce the proper authorities to a serious consideration of this most important subject.

4. As will be seen in Lieut.-Col. Montizambert's report, a large number (59) of Officers and N.-C. Officers of Cavalry, Engineers and Infantry availed themselves of the facilities offered by that School of Gunnery for the purpose of obtaining certificates of qualification in their various Corps. The establishment of separate schools for these Corps will, for the future, relieve the Artillery Schools of

this additional strain, and enable Artillery exercises and instruction to be more fully and systematically conducted.

5. Very many necessary and important repairs to artillery, material, stores, building, &c., have been carried out during the last year by the Battery artificers. It is proposed to still further extend the sphere of their operations, and to establish workshops at each Battery Headquarters, for the purpose of repairing all kinds of Artillery equipment, and, so far as possible, manufacturing guns and transporting carriages and platforms.

6. Captain and Bt. Major J. G. Holmes, "A" Battery, was detached for duty in British Columbia in April last, being appointed Acting Deputy Adjutant-General of Military District No. 11, on his arrival at Victoria, and on the organization of the Regiment on 10th August, was promoted to the rank of Lieut.-Colonel, and to be Commandant of "C" Battery, which is about to be organized.

From my experience of this Officer's services during the past ten years, and of the unremitting zeal and assiduity with which he performed the arduous duties of Adjutant and Quartermaster during the whole of that period, I have no doubt but that he will be found fully competent in every respect to perform the responsible duties devolving upon him in his present position.

7. I attach herewith the Annual Report submitted to me by Lieut.-Cols. Montizambert and Cotton, Commandants of "B" and "A" Batteries, and endorse most strongly their recommendations, relative to an increase of pay to the rank and file (1)

I have the honor to be, Sir,

Your obedient servant,

D. T. IRWIN, Lieut.-Col.,  
Commanding Canadian Artillery Regiment.

#### NOTE BY MAJOR GENERAL COMMANDING.

1. I concur with Lieut.-Col. Irwin that an increase of pay will result in economy and increase of efficiency.

#### REGIMENT OF CANADIAN ARTILLERY—REGIMENTAL ORDERS (1).

GENERAL REGULATIONS for the instruction of Officers, N.-C. Officers and men of the Artillery at the Royal Schools of Gunnery, whether belonging to the Regiment or attached for a course of instruction.

The following Syllabus is arranged for a short course of three months, comprising seventy-five day's actual drill.

During the course it is understood that in each week twenty-five hours practical and three hours theoretical instruction will be given, but this distribution of practical and theoretical instruction may be varied at the discretion of the Commandants.

#### *Garrison Artillery.*

Subjects.	No. of Days.	Subjects.	No. of Days.
Squad drill.....	5	Knotting and lashing.....	4
Rifle exercise.....	8	Transporting ordnance.....	4
Company drill.....	5	Gyn drill.....	4
Standing gun drill.....	10	Mortar drill.....	3
Traversing platform drill.....	4	Regimental duties.....	12
B. L. Siege gun drill.....	6		—
Elementary exercises.....	3		
Shifting ordnance.....	7	Total days.....	75

## APPENDIX No. 8.

## CERTIFICATES, MILITARY SCHOOLS.

NAMES of Officers, Non-Commissioned Officers and others, who have obtained Certificates at the Schools of Military Instruction during the Year 1883.

Name and Rank.	Corps.	Date of Second Class Certificates.	Province.
Adam, Antoine A.....		March 8.....	Quebec.
Argue, Sergeant Major Thomas H.....	8th Battalion	Feb. 8.....	do
Aylwin, Lieutenant Thomas C.....	8th do	do 12.....	do
Bailey, Lieutenant William M.....	69th do	March 3.....	New Brunswick.
Baril, Sergeant François X.....	70th do	do 8.....	Quebec.
Barnhill, Sergeant Jacob L.....	78th do	May 8.....	Nova Scotia.
Beckwith, Sergeant Harry M.....	72nd do	March 3.....	New Brunswick.
Bédard, 2nd Lieutenant Ulderic.....	87th do	do 8.....	Quebec.
Bertram, Corporal David.....	82nd do	do 3.....	New Brunswick.
Bishop, Sergeant Arthur H.....	72nd do	do 3.....	do
Boggs, Private Beaumont.....	66th db	May 8.....	Nova Scotia.
Bouchette, Robert E.....		March 7.....	Quebec.
Bourne, Sergeant Aubrey.....	67th Battalion	do 3.....	New Brunswick.
Bremner, 2nd Lieutenant James A.....	66th do	May 8.....	Nova Scotia.
Butler, Lieutenant Francis H.....	7th do	March 2.....	Ontario.
Cabana, Louis Victor.....		do 8.....	Quebec.
Cassidy, 2nd Lieutenant Holmes.....	68th Battalion	do 3.....	New Brunswick.
Clarke, Captain John.....	58th do	Feb. 19.....	Quebec.
Cole, Major Caleb S.....	69th do	March 3.....	New Brunswick.
Davison, 2nd Lieutenant Charles E.....	63rd do	May 8.....	Nova Scotia.
Dawson, Charles M.....		March 2.....	Ontario.
Dixon, Sergeant Louis.....	63rd Battalion	May 8.....	Nova Scotia.
Drolet, Lieutenant Joseph G.....	9th do	March 9.....	Quebec.
Dufresne, Sergeant Côme.....	81st do	do 9.....	do
Duggan Francis M.....		Feb. 19.....	do
Dumais, 2nd Lieutenant Auguste.....	88th Battalion	March 8.....	do
Dunbar, 2nd Lieutenant James S.....	8th do	do 5.....	do
Durling, Sergeant Edward J.....	68th do	do 3.....	New Brunswick.
Fayes, Lieutenant Alfred.....	9th do	do 2.....	Quebec.
Fairbanks, Private James P.....	63rd do	May 8.....	Nova Scotia.
Fillmore, Sergeant William A.....	Cumberland Provisional Battalion	do 8.....	do
Fiset, Cyprien.....		March 9.....	Quebec.
Fletcher, 2nd Lieutenant Charles R.....	63rd Battalion	May 8.....	Nova Scotia.
Foote, Sergeant Jeremiah.....	68th do	March 3.....	New Brunswick.
Forbes, Private John R.....	63rd do	May 8.....	Nova Scotia.
Forrest, 2nd Lieutenant Sydney L.....	8th do	March 7.....	Quebec.
Forrest, William Henry.....		do 6.....	do
Fournier, Lieutenant Wilbrod.....	61st Battalion	Feb. 8.....	do
Fowle, Sergeant James.....	73rd do	March 3.....	New Brunswick.
Freeman, Sergeant Z. P.....	68th do	do 3.....	do
Fry, Henry.....		Feb. 20.....	Quebec.
Gillies, Sergeant Alexander.....	30th Battalion	March 2.....	Ontario.

NAMES of Officers, Non-Commissioned Officers and others, who have obtained Certificates at the Schools of Military Instruction during the Year 1883.

Name and Rank.	Corps.	Date of Second Class Certificates.	Province.
Gillmor, Sergeant Percy H.....	St. George Infantry Com- pany.....	March 3.....	New Brunswick.
Gilmour, Captain John D.....	8th Battalion.....	Feb. 26.....	Quebec
Goold, 2nd Lieutenant A. H. W.....	66th do.....	May 8.....	Nova Scotia.
Gray, Sergeant Warren.....	66th do.....	do 8.....	do
Gunning, Corporal Charles W.....	63rd do.....	do 8.....	do
Harrington, Sergeant Hubert C.....	Victoria Provisional Batta- lion.....	March 3.....	New Brunswick.
Hegler, Lieutenant James C.....	22nd Battalion.....	do 2.....	Ontario.
Hensley, Private Herbert A.....	66th do.....	May 8.....	Nova Scotia.
Hoson, 2nd Lieutenant John L.....	28th do.....	Feb. 28.....	Ontario.
Irvine, 2nd Lieutenant Charles E.....	28th do.....	March 2.....	do
Jamieson, Lieutenant William.....	30th do.....	do 2.....	do
Johnson, Lieutenant Robert.....	27th do.....	do 2.....	do
Jones, 2nd Lieutenant George E. A.....	8th do.....	Feb. 28.....	Quebec.
Jones, Colour-Sergeant Stephen A.....	38th do.....	March 2.....	Ontario.
Jones, Lieutenant Thomas H.....	38th do.....	Feb. 28.....	do
Jones, 2nd Lieutenant William D.....	38th do.....	do 28.....	do
Jordan, Sergeant Archibald.....	68th do.....	March 3.....	New Brunswick.
Kaine, Lieutenant Christopher C.....	33rd do.....	Feb. 24.....	Ontario.
Kelly, 2nd Lieutenant Charles A. E.....	68th do.....	March 3.....	New Brunswick.
Kuhring, James.....	.....	Feb. 20.....	Quebec.
Lacourcière, Sergeant-Major T.....	70th Battalion.....	March 3.....	do
Loomer, 2nd Lieutenant George.....	68th do.....	do 3.....	New Brunswick.
Loomer, Sergeant Ralph R.....	68th do.....	do 3.....	do
Lordy, Sergeant Arthur.....	74th do.....	do 3.....	do
MacRae, Lieutenant Alexander.....	7th do.....	Feb. 28.....	Ontario.
Matthews, 2nd Lieutenant P.....	26th do.....	March 2.....	do
Maudrell, Sergeant Harry.....	35th do.....	do 2.....	do
Merlin, Private Rupert G.....	66th do.....	May 8.....	Nova Scotia.
Morrison, 2nd Lieutenant Neil B.....	22nd do.....	March 2.....	Ontario.
Morse, Sergeant Frederick M.....	72nd do.....	do 3.....	New Brunswick.
McDonald, Sergeant M. A. J.....	Victoria Provisional Batta- lion.....	do 3.....	do
McFie, 2nd Lieutenant D. J. A.....	60th Battalion.....	Feb. 19.....	Quebec.
McGee, Captain Abram J.....	St. George Infantry Com- pany.....	March 3.....	New Brunswick.
McNeil, 2nd Lieutenant John P.....	Victoria Provisional Batta- lion.....	do 3.....	do
McRae, Sergeant John D.....	Victoria Provisional Batta- lion.....	do 3.....	do
Nicholl, 2nd Lieutenant Arthur A.....	69th Battalion.....	do 3.....	do
Northup, 2nd Lieutenant Joseph A.....	68th do.....	do 3.....	do
O'Farrell, George D.....	.....	do 6.....	Quebec.
Paradis, Sergeant Jean.....	Dorchester Provisional Bat- talion.....	do 9.....	do
Pelletier, Oscar C.....	.....	do 7.....	do
Pinault, Captain Louis F.....	9th Battalion.....	do 7.....	do
Poirier, Lieutenant Julien.....	64th do.....	do 8.....	do
Prower, J. Elton.....	.....	do 9.....	do
Purdy, 2nd Lieutenant James G.....	69th Battalion.....	do 3.....	New Brunswick.
Quinn, Sergeant Daniel.....	22nd do.....	do 2.....	Ontario.
Rayden, Corporal William.....	Prince Edward Island Pro- visional Brigade G.A.....	do 3.....	New Brunswick.
Reid, Lieutenant George McE.....	7th Battalion.....	do 2.....	Ontario.
Rockwell, Corporal Warren L.....	68th do.....	do 3.....	New Brunswick.
Rorke, 2nd Lieutenant Edward.....	31st do.....	do 2.....	Ontario.
Ross, Lieutenant William J.....	68th do.....	do 3.....	New Brunswick.

NAMES of Officers, Non-Commissioned Officers and others, who have obtained Certificates at the Schools of Military Instruction during the Year 1883.

Name and Rank.	Corps.	Date of Second Class Certificates.	Province.
Rouleau, Sergeant Alzidas. ....	17th Battalion. ....	March 9 ....	Quebec.
Routier, Luc Jean Felix. ....	.....	Feb. 8. ....	do
Rowe, Captain Philip J. ....	45th Battalion. ....	do 28. ....	Ontario.
Savard, 2nd Lieutenant Joseph. ....	87th do. ....	March 8. ....	Quebec.
Shaffner, Sergeant Ernest S. ....	72nd do. ....	do 3. ....	New Brunswick.
Stevenson, Walter. ....	.....	Feb. 26. ....	Quebec.
Trudel, Sergeant O. M. E. ....	70th Battalion. ....	March 8. ....	do
Turgeon, Sergeant F. M. ....	Dorchester Provisional Bat- talion. ....	do 8. ....	do
Valcourt, Lieutenant Aimé. ....	84th Battalion. ....	do 8. ....	do
Van Felson, George. ....	.....	do 6. ....	do
Vogel, Private Herman J. A. ....	63rd Battalion. ....	May 8. ....	Nova Scotia.
Ward, Sergeant Everett J. ....	68th do. ....	March 3. ....	New Brunswick.
Watson, Corporal Albert. ....	35th do. ....	do 2. ....	Ontario.
Wheaton, Sergeant Alfred P. ....	68th do. ....	do 3. ....	New Brunswick.
Whitman, 2nd Lieutenant Alfred. ....	66th do. ....	May 8. ....	Nova Scotia.
Whitman, 2nd Lieutenant Henry B. ....	69th do. ....	March 3. ....	New Brunswick.
Wiggins, Corporal Wilford H. ....	67th do. ....	do 3. ....	do
Wilson, Sergeant Henry. ....	22nd do. ....	do 2. ....	Ontario.
Wilson, 2nd Lieutenant John A. ....	33rd do. ....	Feb. 21. ....	do
Wood, Sergeant Elder S. ....	74th do. ....	March 3. ....	New Brunswick.
Woolrich, Lance Corporal Lotsford. ....	63rd do. ....	May 8. ....	Nova Scotia.

Second Class Certificates. .... 113

#### RECAPITULATION.

Ontario. ....	23
Quebec. ....	38
New Brunswick. ....	35
Nova Scotia. ....	17
Total. ....	113

## APPENDIX No. 9.

## CERTIFICATES, BOARDS OF EXAMINERS.

NAMES of Officers of the Active Militia, and of Candidates for Commissions therein, who have obtained Certificates from Boards of Examiners, during the Year 1883.

Name and Rank.	Corps.	Date of First Class Certificates.	Date of Second Class Certificates.	Province.
		1883.	1883.	
Appelbe, Captain William Philip .....	20th Battalion .....	11th Sept. ....	.....	Ontario.
Ashworth, 2nd Lieutenant George J. ....	12th do .....	.....	11th Sept. ....	do
Barwell, Captain John .....	44th do .....	.....	11th do .....	do
Beaumont, Captain Ernest J. ....	29th do .....	1st March .....	.....	do
Black, Captain J. Albert .....	Cumberland Prov. Battalion .....	13th June. ....	.....	Nova Scotia.
Bruce, Captain John .....	10th Battalion .....	11th Sept. ....	.....	Ontario.
Burland, 2nd Lieutenant Jeffrey Hale .....	6th do .....	.....	30th Jan. ....	Quebec.
Campbell, 2nd Lieutenant Fred. Charles ..	2nd do .....	.....	11th Sept. ....	Ontario.
Cheesbrough, 2nd Lieutenant Alfred H. ....	2nd do .....	.....	11th do .....	do
Cole, Major Caleb S. ....	69th do .....	2nd March. ....	.....	N. Brunsw'k
Dogherty, Captain Francis .....	82nd do .....	2nd June. ....	.....	P. E. Island.
DuBord, 2nd Lieutenant A. A. A. ....	85th do .....	.....	18th May. ....	Quebec.
Ellis, Captain Nathan .....	29th do .....	1st March. ....	.....	Ontario.
Gillespie, 2nd Lieutenant John C. ....	13th do .....	.....	11th Sept. ....	do
Glenny, Lieutenant George .....	38th do .....	.....	11th do .....	do
Gosling, 2nd Lieutenant Francis J. ....	10th do .....	.....	11th do .....	do
Graham, 2nd Lieutenant John .....	49th do .....	.....	5th Feb. ....	do
Groves, 2nd Lieutenant John T. ....	19th do .....	.....	11th Sept. ....	do
Gunther, 2nd Lieutenant Ernest F. ....	2nd do .....	.....	11th do .....	do
Hopkins, Sergeant William .....	49th do .....	.....	5th Feb. ....	do
Hotson, 2nd Lieutenant John L. ....	28th do .....	.....	1st March. ....	do
Irving, 2nd Lieutenant Andrew M. ....	2nd do .....	.....	11th Sept. ....	do
Irwin, Captain John .....	26th do .....	1st March. ....	.....	do
Jones, Lieutenant Thomas H. ....	38th do .....	1st do .....	.....	do
Jones, 2nd Lieutenant William D. ....	38th do .....	1st do .....	.....	do
Lee, 2nd Lieutenant Arthur B. ....	2nd do .....	.....	11th Sept. ....	do
Macdonald, Lieutenant William C. ....	2nd do .....	11th Sept. ....	.....	do
MacRae, Lieutenant Alexander .....	7th do .....	1st March. ....	.....	do
Martin, 2nd Lieutenant George B. ....	11th do .....	.....	3rd Aug. ....	Quebec.
Mewburn, 2nd Lieutenant Sydney C. ....	13th do .....	.....	11th Sept. ....	Ontario.
Miller, 2nd Lieutenant Charles .....	8th do .....	.....	19th April. ....	Quebec.
McDonald, Captain John .....	31st do .....	.....	11th Sept. ....	Ontario.
McEwen, Lieutenant Robert .....	26th do .....	1st March. ....	.....	do
McGee, Lieutenant James C. ....	2nd do .....	11th Sept. ....	.....	do
McMichael, Captain George H. ....	38th do .....	.....	11th Sept. ....	do
McMichael, Captain Solon W. ....	38th do .....	.....	11th do .....	do
Newton, 2nd Lieutenant Charles C. ....	6th do .....	.....	30th Jan. ....	Quebec.
Orr, Captain James Alexander .....	49th do .....	.....	5th Feb. ....	Ontario.
Orr, Lieutenant John Rowland .....	49th do .....	.....	5th do .....	do
Peters, Lieutenant Samuel F. ....	7th do .....	1st March. ....	.....	do
Petman, Lieutenant Herbert F. ....	38th do .....	.....	11th Sept. ....	do
Ponton, Captain Edward G. ....	49th do .....	5th Feb. ....	.....	do
Rolls, 2nd Lieutenant Joseph W. ....	20th do .....	.....	11th Sept. ....	do
Rowchell, Captain Burrows H. ....	38th do .....	.....	11th do .....	do
Scott, 2nd Lieutenant Alexander Y. ....	2nd do .....	.....	11th do .....	do
Shepard, Corporal Egbert R. ....	52nd do .....	.....	19th Mar. '80	Quebec.

LIST of Candidates for Commissions, &c.—*Concluded.*

Name and Rank.	Corps.	Date of First Class Certificates.	Date of Second Class Certificates.	Province.
		1883.	1883.	
Symons, 2nd Lieutenant Charles H. ....	10th Battalion .....	.....	11th Sept....	Ontario.
Tucker, Major Joseph John .....	62nd do .....	13th June....	.....	N. Brunsw'k
Walmsley, Captain James E. ....	15th do .....	.....	5th Feb....	Ontario.
Walsh, 2nd Lieutenant Edmond H. ....	2nd do .....	.....	11th Sept....	do
Wiley, Corporal Caspar M. ....	52nd do .....	.....	19th Mar., '80	Quebec.
Total .....	.....	19	32	

## RECAPITULATION.

Provinces.	First Class.	Second Class.	Total.
Ontario .....	13	27	40
Quebec .....	.....	7	7
New Brunswick.....	2	.....	2
Nova Scotia .....	1	.....	1
Prince Edward Island. ....	1	.....	1
Total .....	19	32	51

## APPENDIX No. 10.

## ROYAL MILITARY COLLEGE OF CANADA.

## ANNUAL REPORT.

From Commandant Royal Military College of Canada to General Officer Commanding  
Militia of Canada, President Royal Military College of Canada.

KINGSTON, 3rd December, 1883.

*Period of Report.*

SIR,—

1. I have the honor to submit the following report on the Term, 8th September, 1882, to 26th June, 1883, and on the condition of the College since my last report, viz.: 12th December, 1882.

*Cessation of Double Classes of Graduates.*

2. The present outgoing class of graduates is the last which will contain members of classes originally separate, and which joined the College at different dates, but which have been gradually amalgamated during their College course.

This amalgamation was necessary in order to meet what was found to be essential for the working of the College, viz.: annual, instead of semi-annual Graduation.

This necessity has unavoidably had the effect of temporarily lessening the number of cadets, as it involved the passing out of two classes from, while only one class joined the College annually, for each of the last three years.

In future only one class will graduate annually, and this cause of reduction of numbers will cease.

*Graduates, 1883.*

3. Of the Graduates of June, 1883, some joined in September, 1879, and others in February, 1880. Their names and the full particulars regarding the qualifications of each are given in Appendix A. I am gratified in being able to report that, with few exceptions, these gentlemen are men of ability and industry; some markedly so. A considerable number possess both qualities, while in others in which the former gift is less apparent, it is greatly compensated for by the invaluable quality of industry and power of application. The struggle for the lead between Messrs. Stewart, Leonard, Lang and Weller has been very close throughout their College course of four years, and I shall be greatly surprised if each one does not distinguish himself in whatever career he may select.

*High education; Competition; Record of result; the best System.*

4. It is too often represented that sustained intellectual effort and competition are incompatible with sound physical powers and military qualities; and this taking and rather plausible theory is advanced as a reason for reducing the standard of education and eliminating the only equitable proof of capacity, viz.: a reasonably prolonged, varied, and just competition.

I strongly disapprove of a high competition in early youth; of competition limited to a single subject; or in which the moral and physical qualities are practically ignored; and, also, where it can be avoided, of a competition dependent on the result of a few day's work. Observation teaches me that the theory of a "high education, and as a consequence, an exhausted mind or weakened body," is as baseless as its logical converse of an "inferior education" necessarily being allied to a vigorous mind or robust body; and that the theory springs from the interested and self-preservative instincts of the idle, or intellectually wanting.

It is my firm opinion that when the mental or physical powers break down as a result of educational pressure, it is due either to a faulty system of instruction and co-training, to original lack of physical stamina such as would have involved failure very shortly under any circumstances, or to the strain having been incurred at too early an age. All these difficulties can be avoided, and the last is as unnecessary as it is most certainly injurious.

Objections are also not infrequently heard to recording the individual results of competition.

Emulation is a natural, praiseworthy, and pleasurable, sense in all healthy natures, and the possibility of obtaining *recognition* of success attained is but a wholesome stimulant to it; and therefore objections to its personal application cannot but be due to the dislike of small minds, or of those of inferior moral fibre, to see their fellows accorded a fair opportunity of *demonstrating* their higher capacity or more earnest efforts, and to their receiving the acknowledgment due to their superior qualities.

Where such radically unsound views as are here combatted are allowed to prevail, it tends inevitably towards a general dead level of very low standard.

As a soldier, I am not likely to undervalue physique, or to fail to estimate full vigour of moral and mental energy at a high rate. My experience in Canada, as elsewhere, is that *properly regulated* competition results in the best men "all round" (*i. e.*, those above the average alike morally, intellectually, physically, or in other words, in rectitude and earnestness of purpose, in courage, ability, industry and bodily power), coming to the front; and that every country peopled by our race is quite large enough to supply sufficient men of this stamp for any purpose required, *provided that it takes honest and common sense steps to discover and to encourage them*. It is men proved by such tests as are here advocated that a country needs, and upon whom she will have to rely when her time of trial arrives.

#### *Graduates Accepted Commissions in Her Majesty's Regular Army.*

5. The four commissions in Her Majesty's Regular Army, offered annually to the Cadets of the Royal Military College, have been accepted as follows:

Royal Engineers—Battalion Sergeant-Major J. J. Lang.

Royal Artillery—Sergeant P. E. Gray.

Infantry—Color Sergeant Major B. W. Van Straubenzee.

Cavalry—Corporal W. B. Carruthers.

It is safe to predict that these gentlemen will not only sustain, but add, to the very satisfactory reputation which Cadets of the Royal Military College of Canada have already obtained in the several branches of the service in which they have had the honour of receiving commissions.

#### *Graduates entitled to, but not desiring Commissions in Her Majesty's Regular Army.*

6. The undernamed graduates might have obtained Commissions in Her Majesty's Regular Army, in the Corps specified against their names, had they so desired:

Mr. Stewart—In Royal Engineers, Royal Artillery, Cavalry or Infantry.

Messrs. Leonard, Weller, Casgrain and Kerby—In Royal Artillery, Cavalry or Infantry.

Messrs. Almon, White, Lamb, Nanton and Campbell—In Cavalry or Infantry.

*Medals for General Proficiency.*

7. The undernamed Graduates were the recipients for 1833, of the gold, silver and bronze medals annually presented by His Excellency the Governor General to the Cadets respectively, 1st, 2nd and 3rd in general proficiency, throughout their full course of four years:—

1st. Gold Medal—Company Sergeant-Major N. J. Stewart.

2nd. Silver Medal—Battalion Sergeant-Major J. I. Lang.

3rd. Bronze Medal—Sergeant R. W. Leonard.

The difference in number of marks between the Cadets respectively, 2nd and 3rd on the list, viz.: 234 marks in a total of 53,505 marks, (decided as these have been from month to month during four years) being so small, and the industry and ability of Mr. Leonard having been so marked, His Excellency was pleased, on my recommendation, to present an extra silver, instead of a bronze, medal to Mr. Leonard, in recognition of his great merit. This special action in no way detracts from the position or credit of Mr. Lang who, as second best Cadet, was the actual recipient of the silver medal for the year.

*Sword for Conduct and Discipline.*

8. The sword awarded annually for good conduct and distinguished disciplinary powers has been most deservedly won by

Battalion Sergeant-Major John Irvine Lang.

This gentleman has performed the very responsible and difficult duties of Senior Cadet N.-C. Officer in a most praiseworthy manner, and with very great advantage to the College and to those under his authority.

Mr. Lang is one who can be depended upon to perform any duty requiring ability, industry, and reliability.

*Prizes.*

9. The undernamed Cadets have obtained prizes.

Subject Prizes (determined on the full, *i. e.* four years, period of instruction):—

Conduct and Discipline—Battalion Sergeant-Major Lang.

Drills and Military Exercises—Battalion Sergeant-Major Lang.

Mathematics and Mechanics—Company Sergeant-Major Stewart.

Fortification and Military Engineering—Sergeant Leonard.

Descriptive Geometry and Geometrical Drawing—Sergeant Leonard.

Artillery (Theory and Construction of)—Company Sergeant-Major Weller.

Surveying, Practical Astronomy, Military Topography and Reconnaissance—Sergeant Leonard.

Military History, Strategy, Tactics, Military Administration and Law—Lance Corporal Campbell.

French—Sergeant Casgrain.

Physics—Company Sergeant-Major Weller.

Chemistry—Sergeant Leonard.

Geology—Sergeant Kerby.

Freehand Drawing—Sergeant Lambe.

Civil Engineering—Company Sergeant-Major Weller.

Class Prizes (Determined on work and examination of the Term, *i. e.* ten months):—

1st Class—Company Sergeant-Major Stewart.

2nd Class—Lance-Corporal Carey.

3rd Class—Cadet Ridout.

4th Class—Cadet Sloggett.

10. The undernamed Cadets became entitled to Honorary Badges of distinction as follows :—

For having been first in the combined theoretical subjects of their respective classes, or in three or more separate subjects of instruction.

Class.	Subjects.	Badges.	Names.
1st.....	First in Class.....	1 Star.....	Co. Sergt.-Major W. G. Stewart.
	First in Class.....	1 Star.....	Lance-Corpl. H. C. Carey.
	Military Topography.....		
	Fortification and Military Engineering.....		
2nd....	Military History, &c.....	3 Stars.....	Lance-Corpl. H. C. Carey.
	Mathematics and Mechanics.....		
	Chemistry.....		
	Physics.....		
	Artillery.....		
	First in Class.....	1 Star.....	Cadet D. H. Ridout.
	Military Topography.....		
3rd....	Military History, &c.....	2 Stars.....	Cadet D. H. Ridout.
	Fortification and Military Engineering.....		
	French.....		
	Artillery.....		
	Freehand Drawing.....		
4th.....	First in Class.....	1 Star.....	Cadet H. Sloggett.

For having been the best, or one of the five Cadets most proficient in the several Military exercises herein specified :—

Subjects.	Badges.	Names.
Equitation.....	Spur and Crown.....	Corpl H. B. Strange (best).
	Spur.....	Sergt. H. C. Nanton.
	“.....	Sergt. P. E. Gray.
	“.....	Battn. Sergt.-Major J. I. Lang.
	“.....	Sergt. R. W. Leonard.
Small Arm competition (Sword, Bayonet, Foil.)	Crossed Swords & Crown.....	Cadet A. P. Bremner (best).
	“ “.....	Battn. Sergt.-Major J. I. Lang.
	“ “.....	Co. Sergt.-Major J. L. Weller.
	“ “.....	Sergt. W. A. Von Iffland.
	“ “.....	Corpl. W. B. Carruthers.
Rifle Practice.....	Crossed Rifles and Crown.....	Cadet F. Drayner (best).
	Crossed Rifles.....	Battn. Sergt.-Major J. I. Lang.
	“.....	Co. Sergt.-Major J. L. Weller.
	“.....	Sergt. R. W. Leonard.
	“.....	Sergt. L. M. Lambe.
	“.....	Lance Corpl. I. W. Chalmers.
Artillery Practice.....	“.....	Cadet C. R. Hodgins.
	Crossed Guns and Crown.....	Lance Corpl. J. H. Baker (best).
	“.....	Sergt. W. A. Von Iffland.
	“.....	Lance Corpl. D. C. Campbell.
	“.....	Sergt. W. A. Von Iffland.
	“.....	Lance Corpl. H. C. Carey.

*General result of Examination.*

11. The general result of the examination, 1883, has been decidedly very satisfactory, in fact, more so than in any previous year.

The work of the undernamed Cadets is especially noticeable :

1st Class—Messrs. Stewart, Lang, Leonard, Weller, Van Straubenzee and Gray.

2nd Class—Messrs. Carey, Von Iffland, Hearn and Crawford.

3rd Class—Messrs. Moren, Ridout, Skinner and Von Hugel.

4th Class—Messrs. Sloggett, Perry, Cartwright, Kennedy, Newcomb and Smith.

The unusually backward and wet season of 1883 has greatly interfered with and seriously retarded all out-door work and exercises.

### *Examiners' Reports.*

The several examiners reported as follows :—

#### *Military History.*

Progress of all classes satisfactory.

1st Class—Mr. Campbell has displayed marked proficiency.

2nd Class—Shows very good improvement during the past year, Messrs. Carey, Smith and Hearn having distinguished themselves.

3rd Class—Has done well as a whole. Messrs. Ridout and Moren especially so.

#### *Surveying, Military Topography and Reconnaissance.*

Progress of all the classes has been very satisfactory.

1st. Class—Messrs Almon, Casgrain, Chalmers, Kerby, Lambe, Lang, Nanton, Stewart, Strange, Weller, and White, have passed particularly good examinations in the Dominion Manual of Survey.

Messrs. Carrathure, Casgrain, Lambe, Leonard, Nanton and Weller are the best topographical draughtsmen—Mr. Lambe, in particular, is very good. Messrs. Stewart, Lang, Leonard and Weller obtained a high percentage of marks in geodesy and practical astronomy, Mr. Stewart being decidedly best.

Mr. Leonard is the first Cadet since the opening of the College who has obtained "honours" in the complete course (obligatory and voluntary) of surveying.

2nd Class—Shows marked improvement during past year ; Messrs. Carey, Von Iffland, Hearn, Van Buskirk and Crawford have passed good examinations and are good draughtsmen.

3rd Class—Has done well.

#### *Chemistry, Physics, and Geology.*

The assistance rendered by Lieut. J. Cochrane, of the Royal Military College, has been invaluable.

With the amount of work which instruction in three departments of science (two of which are experimental) involves, I feel the aid of a competent assistant absolutely indispensable, and Mr. Cochrane has filled the position, so far as his other numerous duties at the College have admitted, with the highest satisfaction.

1st Class—More work has been done in this than any previous year.

The number of this class taking up voluntary science subjects has also been greater than heretofore, and these Cadets have presented very satisfactory papers ; 11 took up voluntary chemistry, 6, voluntary physics, and 13, voluntary geology.

This class has more than maintained the high expectations formed, being distinguished for careful and assiduous study. It is above the average in ability and application.

Messrs. Weller, Leonard, Stewart, Lang, Gray, Van Straubenzee, Kerby, and Casgrain are especially prominent.

Mr. Campbell would undoubtedly have been higher had he not had, at the same time as his Royal Military College obligatory examination, to undergo examination for the Civil Service.

2nd Class—Notes have been carefully taken by this class, but examination is not up to the average. Messrs. Carey and Von Iffland have, however, done very well.

*Mathematics and Mechanics.*

1st Class—A greater number of Cadets have taken up mathematics, as a voluntary subject, than in previous years, and with extremely satisfactory results. Messrs. Stewart, Weller and Lang did remarkably good work, Mr. Stewart obtaining 96 obligatory, 86 voluntary,—very high decimals.

2nd Class—This class was very unfavourably reported on last term. It shows very marked improvement this term, each member having very materially increased his percentage of marks, although on a higher course. Messrs. Von Iffland and Carey have worked well and obtained high marks, and have given some extremely good papers.

Messrs. Hearn, Crawford and Sanders have worked well and are much improved.

3rd Class—Competition between Messrs. Von Hugel, Skinner, Moren and Ridout very brisk, and these Cadets all present very good points.

4th Class—Presents remarkably even quality of standard. Mr. Cartwright deserves very great credit for coming to head of list; with greater steadiness Mr. Perry should have beaten him.

Messrs. Girouard, Macdonell and Maxwell, who laboured under great disadvantages on joining the College, have, by diligence and attention, pulled up well.

*Artillery.*

2nd Class—Marks obtained very good; Messrs. Carey and Von Iffland excelling.

3rd Class—Messrs. Ridout, Skinner and Moren have obtained very high marks.

*French.*

1st Class—Not very satisfactory; Messrs. Casgrain, Carruthers, Lang and Almon especially distinguished themselves.

2nd Class—Fairly well; Messrs. Hearn, Von Iffland and Crawford deserve favourable notice.

3rd Class—Extremely good, especially Messrs. Ridout and Moren.

4th Class—Hardly as well as expected. In this class there appears to be a tendency to prevent those who are conspicuous for their aptitude and willing work.

*Civil Engineering.*

1st Class—This class has been noteworthy for its steadiness in working. With two or three exceptions the material of this class justifies my again representing that they are likely to form very efficient and useful Engineers. I specially commend Messrs. Stewart, Lang, Leonard and Lambe for vigour, accuracy and capacity.

*English.*

The progress made is thoroughly satisfactory, and considering the time available, a large amount of work has been done. Notes, full and extensive, essays in various subjects have been written by each Cadet, and perceptible improvement shown in style of composition.

The study of English fills up a very decided want in the curriculum of the College studies, and there is a very praiseworthy disposition on the part of the Cadets to avail themselves of the opportunity afforded them.

1st Class—Although English is a voluntary study for this class, a number of Cadets have taken it up, and have passed a very satisfactory examination.

3rd Class—This class, with one or two exceptions, deserves special commendation, so much so, that it is almost invidious to single out any one Cadet, but Cadet Ridout, though not first, has shown the most observable progress.

4th Class—This class having most time for the study of English, has done most work, but hardly shows equal interest in the subject.

#### *German.*

1st Class—The few Cadets studying German have been diligent and show a desire to avail themselves of the opportunity of studying this interesting, but to many, difficult language.

#### *Freehand Drawing.*

1st Class—This class has not done so well as previous first classes. Mr. Lambe has, however, done extremely well, and is the best draughtsman who has yet graduated. Messrs. Lang, Weller, Leonard, Van Straubenzee, Gray, Kerby and Casgrain have also progressed very satisfactorily.

2nd Class—Moderate progress. Messrs. Von Iffland, Van Buskick and Hearn very satisfactory.

3rd and 4th Classes—Both extremely good, several members exhibiting marked talent, especially Messrs. Ridout, Tilley and Hodgins in 3rd Class, and Messrs. Sloggett and Perry in 4th Class.

#### *Fortification and Military Engineering.*

1st Class—Has done very well, the number obtaining "Honors" and "Special Mention" exceeding any previous year. I wish to mention Serjeant Leonard for conspicuous merit, he having obtained full marks.

2nd Class—Has considerably improved since last year; Messrs. Carey and Von Iffland especially well.

3rd Class—Obligatory work fairly well; Messrs. Ridout, Skinner, Moren and Von Hugel very well. This class not having taken up Voluntary Fortification, will have little or no chance of obtaining "Honors" or "Special Mention" at end of course.

4th Class—Well, on the whole; Messrs. Coutlee, Kennedy, Cartwright, Sloggett and Newman particularly so.

#### *Descriptive Geometry.*

1st Class—Mr. Leonard obtains prizes on very distinguished answering. An exceptionally large number have qualified for "Honors" and "Special Mention" in this most difficult subject, viz: Messrs. Stewart, Lang, Weller, Almon, Casgrain, Gray and Kerby.

2nd Class—Messrs. Carey and Von Iffland alone have taken up voluntary sections of this work.

3rd Class—Moderately well. Messrs. Skinner, Moren, Ridout and Von Hugel deserve special mention.

#### *Geometrical Drawing.*

4th Class—Has worked hard and done well, especially Messrs. Kennedy, Sloggett, Smith, Newcomb and Yorston.

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*Services of Sergeant-Major Birtles.*

The Professor of Fortification and Military Engineering brings to special notice the exceptional merit of, and excellent work done by, Staff Sergeant-Major Birtles, late Royal Engineers, N. C. Officer Instructor in Military Engineering.

The services of this N. C. Officer will therefore form subject of special report.

*Instruction in Riding by Royal School of Gunnery.*

13. Instruction in Equitation has been given to the Graduating Cadets by the Royal School of Gunnery. It is almost unnecessary to say that it has been afforded in a most efficient manner.

The Commandant of the Royal School of Gunnery reports the graduates of 1883 as forming a very satisfactory riding class, and to be better horsemen than their predecessors of former years. In this I most fully concur.

*General conduct of Cadets.*

14. The general conduct and discipline of the Cadets during this term has been, generally speaking, thoroughly satisfactory; and it is most gratifying to be able to report a steady improvement, in all respects, whether in general tone in barracks, in practical military efficiency, or in application to study.

*Graduates of previous years.*

15. I am in a position to know, and it is most pleasing to state, that the Graduates of the Royal Military College, who have entered Her Majesty's Regular Army, have continued to maintain a high character in their respective Corps, and to do credit to their *Alma Mater*.

It is also gratifying to note, that with the exception of a few members of the class which first graduated from the Royal Military College, and who sought and obtained employment in the United States (and who, by the way, are doing excellent work in that country), at most only one or two graduates have since sought civil employment out of Canada, the remainder having obtained it within her own boundaries.

*Class of Officers of Militia.*

16. Since last report, fifteen Short, and five Long, Course Officers (three from Quebec and two from the Maritime Provinces) and three N. C. Officers from the Maritime Provinces, have attended the Royal Military College for instruction in Military Engineering. These Officers have shown most creditable interest and industry in the work, and consequently have passed very satisfactory examinations in both theoretical and practical work. Several Officers and N. C. Officers have expressed their intention to avail themselves of a course (some for second time) next year.

The Commandants of the Royal Schools of Gunnery have, in a very thorough manner, afforded every encouragement and facility to the Officers going through both Long and Short courses to take advantage of the instruction at the Royal Military College.

*Changes in College Staff.*

17. The College has, during the current year, lost two highly valuable members of its staff.

The Rev. G. Ferguson, M.A., has felt compelled to resign his appointment as Professor of English and German at the Royal Military College as, in consequence of increased duties having devolved upon him in his capacity as Professor at Queen's College and University, he found it impossible to devote the time he desired to give to his work at the Royal Military College. Professor Ferguson was the first Professor appointed to the Royal Military College, and his educational experience and knowledge has been of great value to it. The severance of the connection of Professor Ferguson with the College is a source of regret alike to himself and to every member of the staff.

By the resignation of Major Walker, R.E., Professor of Military Engineering, the College has been deprived of an able Professor, a conscientious and zealous public servant, and a high minded soldier; and the Staff of a valued comrade.

Major Sydenham C. McGill, Adjutant 4th Regiment of Cavalry, Militia of Canada, and late Captain Her Majesty's 22nd Regiment, has been appointed Staff Adjutant of the College.

For the proper protection and efficient carrying out of the public service, it was essential that this office should be filled, and I anticipate great advantage to accrue to the College from the previous experience and established character of this Officer.

#### *Removal of Ice bridge, Quebec.*

18. In the spring, Captain Raban, R.E., Instructor of Military Engineering, Royal Military College, proceeded to Quebec, for the purpose of removing the ice bridge which, at the time, prevented navigation of the St. Lawrence above the city. This obstruction to commerce was successfully removed by explosives. This service formed the subject of a communication by me dated 26th May, 1883, forwarding a detailed report by Captain Raban.

By adopting a preconsidered and regular system of operation, it is clearly feasible that the water communication between Quebec and Montreal might be advanced from ten to fourteen days.

#### *Progress of Works authorized.*

19. Of the works mentioned as indispensable in my last report, the following have been carried out:—

- (a) Introduction of gas.
- (b) Concentration of science departments in the upper floor of the north building.
- (c) Extension of Engineer and Artillery sheds.
- (d) Extension of water supply to portion of quarters in outer enclosure.

The advantages anticipated to accrue from the construction of these works are already felt.

I understand that money has been appropriated in financial year 1883-84 for, but works have not yet commenced on, the undernamed services:—

- (a) Improved drainage.
- (b) Ventilation.
- (c) Quarters—Staff, N. C. Officer, Instructor.

These works are much needed.

#### *Works required.*

20. Considerable economy and increased powers of work might be obtained by the carrying out of the following works during the ensuing year.

- (a) Provision of quarters for Staff within the College grounds.

(b) The existing *surplus* steam heating power of the north building to be utilized for heating east building; the separate and unsystematic warming arrangements of the latter being costly, inconvenient, and inadequate for the purpose.

(c) Extension of water supply to remainder of quarters in outer enclosure.

*Increased Facilities Received for Instruction in Science.*

21. Apparatus and appliances of very considerable importance and value have been provided during the year to enable the study of the sciences of Physics, Chemistry and Geology to be prosecuted with increased advantage. These important departments of modern education are now thoroughly well equipped, and are fully equal in this respect to any University in Canada.

*Increased facilities received for Practical Artillery.*

A complete Battery of 6-pounder breach loading field guns of special light construction, such as are suitable for manœuvring with drag-ropes by man power, has been received. This branch of practical work is now, therefore, on a satisfactory footing.

*Matriculants.*

22. The successful matriculants for the year 1883 are given below :—

Name.	Province.	Age on Joining.	Where Educated.
Adams, A.....	Ontario .....	16 $\frac{1}{2}$	Kingston Academy, Kingston.
*Allan, C. S.....	do .....	16 $\frac{1}{2}$	Trinity College School, Port Hope.
Bowie, G. S.....	do .....	15 $\frac{3}{4}$	Collegiate Institute, Ottawa.
Clapp, J. M.....	do .....	16 $\frac{1}{2}$	High School, Picton, Ont.
Cowie, C. S.....	Nova Scotia .....	16 $\frac{3}{4}$	Fort Massey School, Halifax.
Davis, A. L. P.....	Ontario .....	16 $\frac{3}{4}$	Caledonia High School, Hamilton.
Gaudet, F. M.....	do .....	16 $\frac{1}{2}$	University of Ottawa.
Hewett, E. V. O.....	do .....	16 $\frac{3}{4}$	Trinity College School, Port Hope.
Jack, R. B.....	New Brunswick .....	16	Grammar School, Fredericton.
Laurie, G. B.....	Nova Scotia .....	15 $\frac{1}{2}$	The Academy, Picton, N.S.
Leader, H. P.....	Ontario .....	18 $\frac{1}{2}$	Trinity College School, Port Hope.
Luard, C.....	do .....	16	Clifton College, Bristol, England.
Luard, G.....	do .....	17 $\frac{3}{4}$	Sherborne School, Dorset do
Macdonald, R. J.....	British Columbia .....	16 $\frac{3}{4}$	Collegiate School, Victoria, B.C.
Morrow, H. A.....	Ontario .....	17 $\frac{3}{4}$	Trinity College School, Port Hope.
Van Straubenzee, C. C.....	do .....	15 $\frac{1}{2}$	do do

\* This gentleman, a young man of unquestionably *exceptional* promise in every respect, unhappily lost his life by drowning before joining the College, to the great regret of many Cadets of Royal Military College, his former school companions.

*Improvements effected in Organization.*

23. The revised general regulations, dated September, 1883, provided for the payment of the annual deposit required for Cadets in equal moieties instead of in one sum, as heretifore.

The system of qualification for class promotion and for graduation has been modified and simplified.

The designation of the official document attesting to Graduation has been altered from "2nd, and 1st Class, Certificates of Graduation," to "Diplomas of Graduation," or "Diploma of Graduation with Honors," as the case may be.

The word "Diploma" better expresses the course of study at Royal Military College, and distinguishes it from the *drill* Certificates issued to all ranks by the Royal Schools of Artillery and Infantry. The syllabus of the course of instruction has been put in definite and improved form.

All these changes being the result of experience, cannot fail to be beneficial to the College and Cadets.

*Points suggested for consideration.*

24. I would suggest the following points for consideration:—

A. The advisability of making Latin (which is not now taught) a voluntary subject, alternative with either French or English. French to be obligatory to English speaking Cadets, and English to French.

B. A more defined status to Royal Military College as regards qualification for the profession of Civil Engineering and Land Surveying, Civil Service, North-West Mounted Police, and the permanently embodied Military Forces of Canada.

Considering the small number of students to which the Royal Military College is restricted by Act of Parliament, it is not thought that the Sister Civil Educational Institutions of the several Provinces of Canada could be really affected by such a course, or that they would be opposed to some little return being afforded to the graduates of the Royal Military College (as representatives of the *National* Institution of the Dominion of Canada), who are required to devote so considerable a time (four years) to acquiring scientific military knowledge and discipline.

*Representation of every Province on College Roll.*

25. There are now on the College Roll one or more Cadets from every Province in the Dominion, from British Columbia to Prince Edward Island.

26. The large proportion of failures at the examination for admission to Royal Military College among the Candidates for Cadetships, is still very noticeable. This fact, I know, deters many who desire to enter the Royal Military College from attempting its matriculating examination, and to whatever cause so many failures may be traced, it is to be regretted.

Provided that a candidate is intelligent and industrious, and also *young* (2) the system of instruction at Royal Military College is such as to be pretty certain to develop anything in, and to make a valuable man of, him.

The failure of *young* candidates is, therefore, specially to be regretted; that of comparatively old Candidates (who should be better prepared) is of much less moment.

*College insufficiently known to the Public.*

27. It is a satisfactory sign of the appreciation of the Royal Military College by those who know it best, that so many of the near relatives of Cadets or Graduates become candidates for admission.

It is, however, very observable how little known the College is as yet to the *general public*.

Time may remedy this, but meanwhile, increased publicity should be given (as is done in the case of the older kindred institutions in other countries) by periodical advertisement through the country generally of the examinations for admission.

The ordinary Gazette is valueless for this purpose.

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*Inspection by His Excellency the Governor General.*

28. His Excellency the Right Honourable the Marquis of Lorne accompanied by Her Royal Highness the Princess Louise, honoured the Royal Military College by a special inspection very shortly after their arrival in Canada, and again made a similar inspection almost immediately before their departure from the Dominion, thus demonstrating that the warm interest which has been displayed by them towards all educational institutions of Canada, had in no degree lessened as regards the Royal Military College, from four years' observation of its working.

The kindly and considerate interest at all times shown by those so well qualified to judge, has afforded great encouragement to all connected with the Royal Military College in their unflagging efforts to render that Institution worthy of the Dominion of Canada.

I have the honour to be Sir,

Your obedient servant,

E. O. HEWETT, Colonel Royal Engineers,  
Commandant Royal Military College.

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NOTES BY MAJOR-GENERAL COMMANDING.

(1) These points should, I think, be considered and reported on by the Board of Visitors.

(2) It will be observed that the ages of those entered in 1883, range from  $15\frac{1}{2}$  to  $17\frac{5}{2}$ , with one exception, and that is  $18\frac{1}{2}$ .

## DETAIL of Qualifications of Gentlemen Cadets

Regimental Number.	Rank.	Names (in alphabetical order).	Province (belonging to).	Determined on Marks obtained from date of Joining to date of Graduating from R. M. College.																
				Position in each subject.																
				Mathematics and Mechanics.	Fortification and Military Engineering.		Strategy, Tactics, Military Administration and Military Law.	Surveying, Military Reconnaissance.	Geometrical Drawing and Descriptive Geometry.	French.	Chemistry.	Physics.	Geology.	Freehand Drawing and Painting.	Civil Engineering.	Drills and Exercises.	Conduct.	N.-C. Officers' Discipline.		
					Artillery (Theory and Construction of).															
93	Co. Serg.-M.	Almon, M. B.....	Nova Scotia.	7	14	7	8	8	8	9	10	15	...	11	11	11	3	6		
98	Lance Corpl.	Baker, J. H. ....	Quebec .....	20	19	18	12	19	17	19	11	16	10	12	10	15	9	17		
70	do ...	Benson, T. ....	Ontario .....	23	23	23	23	23	23	16	...	22	...	14	22	19	13	...		
73	do ...	Campbell, D. C. ...	do .....	8	20	8	1	21	14	7	...	12	...	22	15	20	21	...		
82	Corporal....	Carruthers, W.B. ...	do .....	15	15	15	14	15	15	2	...	21	...	13	18	4	6	14		
92	Sergeant ....	Casgrain, P. H. ...	Quebec .....	5	6	12	10	4	6	1	7	8	6	6	6	17	14	13		
99	Lance Corpl.	Chalmers, T. W. ...	Ontario .....	11	17	16	21	20	16	18	...	19	...	15	17	18	12	18		
75	do ...	Evans, A. T. ....	do .....	21	23	22	22	22	22	23	...	23	...	23	23	23	23	...		
87	Sergeant ....	Gray, P. E. ....	Nova Scotia.	17	13	10	9	7	7	4	6	5	4	17	9	8	15	12		
69	do ...	Joly, A. C. ....	Quebec .....	22	16	20	16	18	20	14	...	20	...	20	21	16	16	15		
74	do ...	Kerby, F. M. ....	Ontario .....	4	11	5	11	10	5	22	9	9	1	4	8	13	11	9		
89	do ...	Lambe, L. ....	Quebec .....	19	10	17	17	9	13	10	...	13	...	1	*12	12	8	8		
79	Bn. S.-M.....	Lang, J. I. ....	Ontario .....	2	3	4	4	5	3	3	5	4	5	2	4	1	2	1		
86	Sergeant ....	Leonard, R. W. ....	do .....	3	1	3	15	1	1	6	1	2	2	3	2	2	4	5		
78	do ...	Nanton, H. C. ....	do .....	*12	5	11	7	11	12	13	...	11	...	10	*12	6	19	7		
84	Lance Corpl.	Neyland, M. W. ...	do .....	16	21	21	18	16	19	20	...	18	...	9	19	7	3	19		
85	Co. S.-M.....	Stewart, W. J. ....	do .....	1	2	2	3	2	2	5	2	3	3	8	3	9	5	2		

who Graduated on the 26th June, 1883.

General Position in Batch on Graduating.	Total Marks.	Distinctions Obtained.		
		Certificate of Graduation (Class of).	Honours.	Special Mention.
9	37,327	First....	Conduct. N.-C. Officers' Discipline.....	Geometrical Drawing and Descriptive Geometry.
17	31,230	do ....	Nil.....	Conduct.
22	23,122	do ....	Nil.....	Conduct.
13	34,632	do ....	Strategy, Tactics, Military Administration and Law.	Conduct.
15	33,711	do ....	Conduct. Drills and Military Exercises.	French.
5	43,853	do ....	French.....	Surveying, Military Topography and Reconnaissance. Geometrical Drawing and Descriptive Geometry. Civil Engineering. Conduct.
19	29,686	do ....	Nil.....	Conduct.
23	21,311	Second..	Nil.....	Nil.
7	39,701	First....	Nil.....	Geometrical Drawing and Descriptive Geometry. French. Conduct.
21	28,699	do ....	Nil.....	Conduct.
6	41,099	do ....	Nil.....	Mathematics and Mechanics. Geometrical Drawing and Descriptive Geometry. Civil Engineering. Geology. Conduct.
11	36,394	do ....	Freehand Drawing. Conduct. N.-C. Officers' Discipline.	Nil.
2	53,505	do ....	Mathematics and Mechanics. Theory and Construction of Artillery. Geometrical Drawing and Descriptive Geometry. Conduct. Drills and Military Exercises. N.-C. Officers' Discipline.	Fortification and Military Engineering. Strategy, Tactics, Military Administration and Law. Surveying, Military Topography and Reconnaissance. Physics. French. Civil Engineering. Chemistry.
3	53,271	do ....	Mathematics and Mechanics. Fortification and Military Engineering Theory and Construction of Artillery. Surveying, Military Topography and Reconnaissance. Geometrical Drawing and Descriptive Geometry. Physics. Civil Engineering. Chemistry. Conduct. Drills and Military Exercises.	Geology.
12	35,004	do ....	N.-C. Officers' Discipline .....	Conduct.
20	28,957	do ....	Nil.....	Conduct.
1	54,656	do ....	Mathematics and Mechanics. Fortification and Military Engineering. Theory and Construction of Artillery. Surveying, Military Topography and Reconnaissance. Geometrical Drawing and Descriptive Geometry. Civil Engineering. Conduct.	Strategy, Tactics, Military Administration and Law. Physics. French. Chemistry. N.-C. Officers' Discipline.

## DETAIL of Qualifications of Gentlemen Cadets

Regimental Number.	Rank.	Names (in alphabetical order).	Province (belonging to).	Determined on Marks obtained from date of Joining to date of Graduating from R. M. College.														
				Position in each subject.														
				Mathematics and Mechanics.	Fortification and Military Engineering.	Artillery (Theory and Construction of).	Strategy, Tactics, Military Administration and Military Law.	Surveying, Military Topography and Reconnaissance.	Geometrical Drawing and Descriptive Geometry.	French.	Chemistry.	Physics.	Geology.	Freehand Drawing and Painting.	Civil Engineering.	Drills and Exercises.	Conduct.	N.-C. Officers' Discipline.
83	Corporal ....	Strange, H. B. ....	Quebec .....	*12	12	6	13	14	21	12	...	14	...	18	5	14	22	16
88	Lance Corpl.	Twyning, P. G. ...	Nova Scotia	10	8	13	2	13	9	8	...	10	...	19	16	22	20	....
100	Co. S.-M. ....	Van Straubenzee, B. W.	Ontario .....	18	9	19	5	6	10	11	8	6	8	7	14	5	1	3
101	do .....	Weller, J. L. ....	do .....	6	4	1	19	3	4	15	4	1	7	5	1	3	7	4
96	Corporal ....	White, J. ....	do .....	9	7	9	6	12	12	17	3	7	9	21	7	21	17	*10
90	do ....	Woodman, J. ....	do .....	14	18	14	20	17	11	21	...	17	...	16	20	10	10	*10

\* Equal.

1st December, 1883.

who Graduated on the 26th June, 1883—*Concluded.*

General Position in Batch on Graduating.	Total Marks.	Distinctions Obtained.		
		Certificate of Graduation (Class of).	Honours.	Special Mention.
16	32,551	First ....	Nil .....	Civil Engineering.
14	34,437	do ....	Strategy, Tactics, Military Administration and Law.	Conduct.
8	38,983	do ....	Conduct. N.-C. Officers' Discipline.....	Nil.
4	46,787	do ....	Surveying, Military Topography and Reconnaissance. Theory and Construction of Artillery. Geometrical Drawing and Descriptive Geometry. Physics. Civil Engineering. Conduct. Drill and Military Exercises.	Fortification and Military Engineering. Chemistry. N.-C. Officers' Discipline.
10	36,418	do ....	Nil .....	Fortification and Military Engineering. Chemistry. Civil Engineering Conduct. N.-C. Officers' Discipline.
18	30,459	do ....	Conduct .....	N.-C. Officers' Discipline.

E. O. HEWETT, Colonel R.E.,  
*Commandant Royal Military College.*

## APPENDIX No. II.

## REPORT OF THE DIRECTOR OF STORES, &amp;c.

DEPARTMENT OF MILITIA AND DEFENCE, STORE BRANCH,  
OTTAWA, 31st December, 1883.

SIR,—I have the honor to submit the following Report on Militia stores and property in my charge:—

*Clothing.*

It having been decided to obtain the Militia Clothing in Canada, contracts have been entered into this year with Canadian manufacturers for the usual annual supply.

The experiment to produce scarlet cloth in this country has not, however, been attended with success. A supply of scarlet tunics with serge trousers to complete the suits, were, therefore, imported from contractors in England to meet the requirements for the year.

Contracts have also been entered into in Canada for the manufacture of articles of necessaries and store supplies required for the Royal Schools of Gunnery and the new Infantry Schools recently established.

A supply of infantry great coats of very superior Canadian cloth was recently received from contractors in Canada.

The total issues for the past year have been, for all arms; 7,719 cloth and serge tunics, 7,147 pairs of cloth and serge trousers, 3,302 forage caps, and 3,815 great coats.

The detailed issues of clothing for the year is shown by the following statement:—

## ISSUES.

Tunics, Cloth.					Tunics, Serge.				Trousers, Cloth, Pairs.		Trousers, Serge, Pairs.		Forage Caps.				Great Coats			
Cavalry.	Artillery.	Engineers.	Infantry.	Rifles.	Cavalry.	Artillery.	Infantry.	Rifles.	Cavalry-	Artillery.	Artillery.	Infantry.	Rifles.	Cavalry.	Artillery.	Infantry.	Rifles.	Cavalry,	Artillery.	Infantry and Rifles
259	1,198	42	4,079	1,362	.....	439	340	.....	172	620	1,308	4,479	568	215	1,101	1,942	42	35	216	3,570

*Ammunition.*

The practice ammunition issued to the Force during the year was 371,410 rounds of ball and 282,159 rounds of blank (*Vide Appendix A*).

The issues on re-payment for the year was 686,504 rounds of "Snider" ball, 20,950 rounds of "Martini-Henry" Rifle, and 600 rounds of "Spencer" Rifle ammunition, being a total of 708,054 rounds to Rifle Associations and Militia Corps for Rifle competitions and private practice, for which the deposit receipts credited to the Receiver-General amounted to \$11,729.87, including the value of powder and friction tubes supplied for the noon gun at Ottawa. (*Vide Appendix B*).

The usual supply of gun powder, friction tubes and projectiles has been issued to the several Field and Garrison Batteries of Artillery for annual practice and salutes. (*vide* Appendix C.)

A supply of small arm ammunition, ball and blank, to add to the reserve, has been received in store charge from the new cartridge factory at Quebec.

A Board of Officers having been appointed to test the new cartridges, the report was in every respect satisfactory, as showing the ammunition to be quite equal to that imported from England.

The annual supply of R.L.G. powder was purchased this year from the Hamilton Powder Company, and on inspection was found to be satisfactory.

#### *Arms.*

The arms at the several stations are being repaired as far as it is possible with the limited assistance at the disposal of the store branch. An Assistant Armourer is required at Toronto, being one of the largest districts.

The appointment of an Armourer is necessary for Military District No. 1, at London, and No. 4, at Ottawa; also for No. 7, Quebec, in place of the late Sergeant Winn, a most valuable N.C. Officer, whose death at a recent date was much regretted.

#### *Boards of Survey.*

The usual Boards of Survey on Militia Stores in charge at the several stations, were held in accordance with regulations. The sales by public auction of stores condemned by these Boards, were authorized at several stations, and the proceeds of such sales duly placed to credit of the Receiver-General. In some cases the quantity of condemned stores was so small it was deemed inexpedient to dispose of them as the proceeds would hardly cover the expense attending their sale in this manner.

#### *New Store Building.*

The Department having acquired by purchase a new store building at Ottawa, the whole of the clothing and other Militia stores were removed during the summer from the old building formerly in use. The new building has been fitted up under direction of the Public Works Department, and is in every respect most suitable and convenient for a Military store, the ground flat, being arranged for Storekeeper's office, Armourers' and Carpenters' shops, and the storage of arms and heavy stores.

The second flat is fitted up with shelving for clothing, necessities, and the various small stores and sample room.

The third story is arranged for the storage of camp equipment and accoutrements of all kinds, a portion of this flat being also used as a residence for the Caretaker. Altogether, the accommodation for the stores may be considered most complete.

#### *Camp Losses and Deficiencies.*

The arrangements this year for the delivery of Camp equipment, issued for use in the several Camps and the receiving of same on the breaking up of camps, were found to be an improvement on previous years, and it is suggested that in future the Quartermasters of Camps be directed to secure the delivery of all equipment from Officers Commanding, on breaking up of Camp, before the Corps leave the ground, when any loss or deficiency could more readily be adjusted. The Quartermaster should also be furnished in all cases with a fatigue party to assist him in this duty, as in some instances it has been reported that in the hurry of leaving Camp, the Quartermaster was left without sufficient assistance in securing the equipment.

#### *Military Properties.*

During the past summer certain Imperial lands held for military purposes in various parts of the Province of Nova Scotia, were transferred to the Dominion Government through this Department, and are now classified with the other Militia properties in charge. Most of these lands are under lease to parties resident in the several localities.

The amounts received for rents of Militia properties for the current year appears in the following statements,—viz : \$4,354.65, arrears still due, \$731.00.

Number of Tenants.	Stations.	Amounts of Rents Accrued.	Arrears still Due.	Remarks.
		\$ cts.	\$ cts.	
.....	Winnipeg, Man.....	.....	.....	.....
1	Chatham, Ont.....	1 00	.....	.....
1	London.....	12 50	.....	.....
2	Niagara.....	16 00	36 00	.....
5	Toronto.....	177 50	20 00	.....
1	Ottawa.....	1 00	.....	.....
20	Kingston.....	418 79	81 50	.....
4	Montreal.....	100 00	.....	.....
1	Laprairie.....	1 00	.....	.....
2	Isle aux Noix.....	64 00	.....	.....
23	Quebec, &c.....	2 835 65	112 00	.....
28	Point Lévis.....	448 50	431 50	.....
19	New Brunswick.....	168 75	50 00	.....
3	Nova Scotia.....	108 96	.....	.....
1	Prince Edward Island.....	1 00	.....	.....
.....	Prescott, Ont.....	.....	.....	.....
.....	St. John's, Que.....	.....	.....	.....
111	Total received, 1883.....	\$4,354 65	.....	.....
	Total arrears.....	.....	\$731 00	.....

#### DEPOSIT RECEIPTS.

The amount received by the Store Branch for stores and ammunition issued on re-payment, and for rents collected on Militia property during the year, is shown in the following statement:—

Ammunition.		Clothing.		Arms and Accoutrements.	Deficiencies.	Rents.	Miscellaneous.	Total Amount.
Rounds.	Amount.	Officers.	Men.					
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
708.054	11,729 87	79 00	507 91	132 20	40 51	4,354 65	471 52	17,315 66

#### Military Museum.

Donations of articles of historical interest continue to be made to the Museum. Some valuable additions have been received during the past year.

The reports received from the Superintendents of Stores in the several Districts as to the condition of the stores and buildings, &c., in charge, are satisfactory.

I have the honor to be, Sir,

Your most obedient servant,

J. MACPHERSON, Lieut. Colonel,  
Director of Stores and Keeper of Militia Properties.

The Honorable  
The Minister of Militia and Defence,  
Ottawa,

## [A.]

## S. A. AMMUNITION issued for Practice during the year 1883.

Date.	Corps and Station.	Rounds.	
		Ball.	Blank.
1883.	<i>Military District No. 1, London.</i>		
Jan. 2.....	Captain Garnett, No. 1 Company, 26th Battalion.....	820	.....
June 13....	do Nicoll, No. 1 Battery, 1st Brigade, Field Artillery.....	1,500	.....
do 13.....	do Hood, No. 2 do do do.....	1,500	.....
do 13.....	The Quarter Master, Camp, London.....		47,040
do 13.....	7th Battalion.....		5,880
July 12.....	Lt.-Col. Walker, Commanding 7th Battalion.....	5,880	.....
Sept. 21.....	Lieutenant Johnson do No. 5 Company, 24th Battalion...	420	.....
do 21.....	Captain Mutrie do No. 6 do 30th do ...	400	.....
do 21.....	do Bleakley do No. 5 do 22nd do ...	500	.....
do 21.....	do Smith do No. 4 do 24th do ...	260	.....
do 24.....	do Ley do No. 7 do 25th do ...	780	.....
do 26.....	do McDowell do No. 7 do 30th do ...	220	.....
do 27.....	do Carroll do No. 6 do 27th do ...	680	.....
do 29.....	do Allan do No. 4 do 30th do ...	500	.....
do 29.....	do Kenward do No. 4 do 27th do ...	560	.....
Oct. 8.....	do Patterson do No. 1 do 24th do ...	640	.....
do 9.....	do McCleneghan do No. 6 do 22nd do ...	560	.....
do 10.....	do Day do No. 8 do 22nd do ...	540	.....
do 13.....	do Moore do No. 8 do 30th do ...	580	.....
do 16.....	do Moscrip do No. 3 do 28th do ...	720	.....
do 17.....	do Beam do No. 4 do 28th do ...	500	.....
do 29.....	do Beattie do No. 3 do 30th do ...	680	.....
do 30.....	do Lindsay do No. 6 do 25th do ...	700	.....
		18,940	52,920
July 25.....	Less—Returned from Camp Quarter Master, London.....		11,533
	Total.....	18,940	41,387
1883.	<i>Military District No. 2, Toronto.</i>		
June 12.....	Lt.-Col. Denison, Commanding Governor-General's Body Guard.....	1,680	1,680
do 19.....	Major Peters, Commanding London Field Battery.....	500	.....
do 20.....	The Quarter Master, Camp, Niagara.....	60,000	60,000
Aug. 22.....	Lt.-Col. Grasett, Commanding 10th Royals.....	6,720	1,000
Oct. 9.....	do Jones do 38th Battalion.....	5,040	5,040
do 16.....	do Skinner do 13th do .....	5,040	5,040
do 23.....	Major Miller do 2nd do Q. O. Rifles....	8,400	3,900
		87,380	76,660
July 4.....	Less—Returned by Camp Quarter Master, Niagara.....	24,000	25,370
	Total.....	63,380	51,290
1883.	<i>Military District No. 3, Kingston.</i>		
May 8.....	Commandant Royal Military College.....		4,000
do 16.....	do "B" Battery, R. S. G.....	5,000	5,000
Aug. 30.....	Lt.-Col. Kerr, Commanding 14th P. W. O. Rifles.....		5,040
Sept. 8.....	The Quarter Master, Camp, Cobourg.....	32,120	25,720
	Total.....	37,120	39,760

S A. Ammunition issued for Practice during the Year 1883.—*Continued.*

Date.	Corps and Station.	Rounds.	
		Ball.	Blank.
1883. <i>Military District No. 4, Ottawa.</i>			
June 21.....	The Quarter Master, Camp, Brockville .....	26,040	20,000
	Total.....	26,040	20,000
1883. <i>Military Districts Nos. 5 and 6 Montreal.</i>			
June 22.....	The Quarter Master, Camp, St. Johns, Quebec.....	45,000	45,000
do 25.....	do do Laprairie .....	25,000	25,000
July 24.....	Major Kennedy, Commanding Montreal Engineers .....	1,000	.....
Aug. 7.....	Lt.-Col. Feltou do 53rd Battalion.....	3,360	3,360
do 16.....	do Sheppard do 83rd do .....	5,500	5,500
Sept. 14.....	do Cox do 79th do .....	5,600	5,600
do 20.....	do Oswald do Montreal Brigade, G. A.....	500	.....
do 21.....	do Houde do 86th Battalion.....	5,500	5,500
Oct. 8.....	Major Caverhill, 5th Royal Scots.....	5,040	.....
	Total Issues.....	93,500	89,960
July 19.....	Less—Returned from Camp Quarter Master, Laprairie .....	9,000	15,700
do 19.....	do do St. Johns .....	21,940	43,520
Sept. 1.....	do do 83rd Battalion.....	.....	3,600
Oct. 5.....	do do 79th do .....	800	3,900
	Total Returned.....	31,740	66,720
	Total .....	64,760	23,240
1883. <i>Military District No. 7, Quebec.</i>			
Mar. 17.....	Lieut.-Col. Sectt. Commanding 8th Royal Rifles.....	5,040	5,040
do 22.....	Captain Roy, Commanding No. 1 Battery, Q. G. A.....	840	.....
do 22.....	do Boulanger do 2 do do .....	840	.....
do 22.....	do Morgan do 3 do do .....	840	.....
May 5.....	Lieut.-Col. Forsyth, Commanding Quebec Cavalry.....	1,680	1,680
do 5.....	do Amyot do 9th Battalion.....	4,000	4,000
do 5.....	Major Lindsay do Quebec Field Battery.....	750	750
June 4.....	Lieut.-Col. Duchesnay, D.A.G., 7 M.D. for Camp Lévis.....	51,800	23,712
Aug. 2.....	Lieut.-Col. Cotton, Commandant "A" Battery, R.S.G.....	6,000	.....
	Total .....	71,790	35,182
1883. <i>Military District No. 8, St. John, N.B.</i>			
Mar. 21.....	Captain McGee, Commanding St. George Infantry Company...	840	.....
Aug. 2.....	Lieut.-Col. Foster do N.B. Brigade G.A.....	1,680	.....
do 23.....	do Blaine do 62nd Fusiliers.....	5,040	5,040
Sept. 20.....	The Quartermaster, Camp, Sussex .....	16,880	13,360
Nov. 1.....	Captain Hartt, Commanding St John Rifle Company.....	840	840
	Total.....	25,280	19,240

S. A. Ammunition issued for Practice during the Year 1883—*Continued.*

Date.	Corps and Station.	Rounds.	
		Ball.	Blank.
1883.	<i>Military District No. 9, Halifax, N.S.</i>		
June 25.....	Captain Gordon, Commanding Pictou Garrison Battery .....	840	840
do 28.....	The Quartermaster Camp, Pictou.....	17,720	26,120
July 7.....	Lt.-Col. Mowbray, Commanding 1st Bgde. G.A., Halifax, N.S.	5,040	5,040
do 7.....	Captain Daley do Digby Battery.....	840	840
do 7.....	do Jolly do Yarmouth do .....	840	840
do 7.....	do James do Mahone Bay do .....	840	840
do 7.....	do Brown do Lunenburg do .....	840	840
do 7.....	Lt.-Col. Mackintosh do 63rd Battalion.....	5,040	5,040
do 7.....	do Bremner do 66th P.L.F.....	6,720	6,720
Aug. 23.....	68th Battalion.....	5,040	.....
do 23.....	69th do .....	6,720	.....
do 23.....	78th Highlanders.....	5,880	.....
do 23.....	Cumberland Provincial Battalion.....	4,200	.....
do 23.....	Argyle Highlanders.....	4,200	.....
do 23.....	No. 6 Company 75th Battalion.....	840	.....
		65,600	47,120
July 19.....	Less returned by Quartermaster Camp, Pictou.....	17,500	5,700
	Total.....	48,100	41,420
1883.	<i>Military District No. 10, Manitoba.</i>		
Aug. 9.....	Captain Knight, Winnipeg Cavalry.....	700	700
Sept. 26.....	Winnipeg Field Battery.....	1,520	.....
	Total.....	2,220	700
1883.	<i>Military District No. 11, British Columbia.</i>		
April 27.....	Lieut. Harvey, Commanding No. 1 Company Rifles, Nanaimo...	420	.....
July 19.....	Capt. Pittendreich do Seymour Artillery.....	700	700
do 13.....	do Peele do New Westminster Rifles.....	700	700
Aug. 2.....	do Wolfenden do No. 1 Company Victoria Rifles....	700	700
do 3.....	do Fletcher do No. 2 do .....	700	700
do 3.....	Victoria Garrison Artillery .....	1,400	1,400
Oct. 1.....	Nanaimo Rifle Company.....	700	700
	Total.....	5,320	4,900
1883.	<i>Military District No. 12, Prince Edward Island.</i>		
June 9.....	Major Mabon, 82nd Battalion .....	60	.....
Sept. 24.....	do Dogherty, Charlottetown Engineers.....	840	840
do 24.....	do Mabon, No. 4 Company 82nd Battalion.. ..	840	840
do 24.....	Capt. McLeod, No. 5 do 82nd do .....	840	840
do 24.....	do Alexander, No. 6 do 82nd do .....	840	840
do 24.....	do Maxfield, No. 1 do Prince County Battalion.....	840	840
do 24.....	Lieut. Fraser, No. 1 do King's do .....	840	840
Oct. 19.....	Major Irving, Commanding P.E.I. Brigade Garrison Artillery.	2,520	.....
do 23.....	Capt. Stewart, No. 3 Company 82nd Battalion.....	840	.....
	Total.....	8,460	5,040

## RECAPITULATION.

Districts.		Rounds.	
		Ball.	Blank.
Military District] No. 1, London .....		18,940	41,387
do 2, Toronto .....		63,380	51,290
do 3, Kingston .....		37,120	39,760
do 4, Ottawa .....		26,040	20,000
do 5 and 6, Montreal .....		64,760	23,240
do 7, Quebec .....		71,790	35,182
do 8, St. John, N.B. ....		25,280	19,210
do 9, Halifax, N.S. ....		48,100	41,420
do 10, Winnipeg .....		2,220	700
do 11, Victoria, B.C. ....		5,320	4,900
do 12, Charlottetown, P.E.I. ....		8,460	5,040
Total .....		371,410	282,159

## (B.)

## S. A. AMMUNITION issued on repayment during the Year 1883.

*Military District No. 1, London.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
April 23...	Charles Cottis.....	Guelph Rifle Association.....	1,000	16 00
May 1...	do .....	do .....	2,000	32 00
do 5...	do .....	do .....	2,000	32 00
do 7...	Major Wilson.....	33rd Battalion.....	2,000	32 00
do 1...	Capt. Stevenson.....	26th do .....	1,000	16 00
do 12...	do .....	26th do .....	1,000	16 00
do 16...	Major Wilson.....	33rd do .....	1,000	16 00
June 12...	W. Lawrence.....	Perth Rifle Association.....	1,500	24 00
July 28...	Capt. Stevenson.....	26th Battalion.....	1,000	16 00
Aug. 15...	W. Lawrence.....	Perth Rifle Association.....	1,500	24 00
do 20...	Charles Cottis.....	Guelph do .....	2,000	32 00
Sept. 6...	J. Codfield.....	Woodstock Rifle Association.....	2,000	32 00
do 11...	Lt.-Col. Jackson.....	Perth do .....	800	12 80
do 28...	Major Stevenson.....	26th Battalion.....	1,000	16 00
do 29...	Capt. Reid.....	24th do .....	500	8 00
Oct. 4...	R. A. Woodcock.....	Ingersoll Rifle Association.....	2,000	32 00
do 13...	Lieut. R. McEwan.....	26th Battalion.....	500	8 00
do 30...	R. A. Woodcock.....	Ingersoll Rifle Association.....	800	12 80
Nov. 3...	Lieut. R. McEwan.....	26th Battalion.....	500	8 00
do 26...	Major Stevenson.....	26th do .....	1,000	16 00
Total.....			25,000	401 60

*Military District No. 2, Toronto.*

Jan. 10...	Lt.-Col. Otter.....	Ontario Rifle Association.....	30,000	480 00
Mar. 30...	Lt.-Col. Alger.....	do .....	22,000	} 400 00
do 30...	do .....	do .....	2,000	
May 17...	Lt.-Col. Jones.....	38th Battalion.....	1,000	16 00
do 19...	do .....	38th do .....	1,000	16 00
do 11...	do .....	38th do .....	1,000	16 00
do 15...	Lieut. Drinkwater.....	35th do .....	500	8 00
July 16...	Lieut.-Col. Jones.....	38th do .....	1,000	16 00
do 16...	Lieut. McMicking.....	44th do .....	500	8 00
do 16...	Major Mason.....	13th do .....	500	8 00
do 26...	Lt.-Col. Alger.....	Ontario Rifle Association.....	42,000	672 00
Aug. 2...	Lt.-Col. Jones.....	38th Battalion.....	3,000	48 00
do 6...	Pte. Wilson.....	12th do .....	500	8 00
do 6...	Lt.-Col. Jones.....	38th do .....	3,000	48 00
do 8...	Major Dunn.....	Governor General's Body Guard.....	500	8 00
do 14...	Lt.-Col. Davis.....	37th Battalion.....	1,000	16 00
do 14...	Lt.-Col. Jones.....	38th do .....	3,000	48 00
do 27...	Major Mason.....	13th do .....	2,000	32 00
Sept. 4...	Lieut. Cleverdon.....	34th do .....	1,000	16 00
do 6...	Major Dunn.....	Governor General's Body Guard.....	500	8 00
Oct. 4...	do .....	do .....	1,500	24 00
Nov. 1...	Capt. Scott.....	35th Battalion.....	500	8 00
do 16...	Capt. Carpenter.....	77th do .....	500	8 00
do 26...	R. F. Carter.....	44th do .....	500	8 00
Dec. 17...	Major Dunn.....	Governor General's Body Guard.....	5,000	80 00
Total.....			124,000	2,000 00

(B)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 3, Kingston.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
Jan. 25...	Major Gordon.....	14th Princess of Wales Own Rifles.....	4,000	64 00
do 27...	Capt. Baillie.....	47th Battalion.....	2,000	32 00
May 21...	Major Bell.....	Peterboro' Rifle Association.....	2,000	32 00
June 7...	Lt.-Col. Bog.....	16th Battalion.....	2,000	32 00
do 27...	do.....	16th do.....	2,000	32 00
July 6...	J. W. McLaughlin.....	Bowmanville Rifle Association.....	500	8 00
do 6...	do.....	do.....	500	12 00
do 16...	Major Bell.....	Peterboro' Rifle Association.....	4,000	64 00
do 21...	H. Tammadge.....	49th Battalion.....	1,000	16 00
Aug. 8...	Lt.-Col. Montizambert.....	"B" Battery.....	2,000	32 00
do 14...	H. Tammadge.....	49th Battalion.....	1,000	16 00
Sept. 17...	J. W. McLaughlin.....	Bowmanville Rifle Association.....	2,000	32 00
do 27...	Major Dingwall.....	46th Battalion.....	1,000	16 00
Oct. 2...	Major Bell.....	Peterboro' Rifle Association.....	2,000	32 00
do 13...	Lt.-Col. Bog.....	16th Battalion.....	800	12 80
do 13...	H. Tammadge.....	49th do.....	2,000	32 00
do 20...	J. W. McLaughlin.....	Bowmanville Rifle Association.....	1,000	16 00
do 22...	Capt. Howard.....	57th Battalion.....	530	8 50
do 24...	Capt. Birdsall.....	57th do.....	1,900	16 00
do 26...	Sergt. Hume.....	14th do.....	1,500	24 00
Nov. 17...	Capt. Baillie.....	47th do.....	4,800	76 80
Dec 27...	do.....	47th do.....	5,000	80 00
do 27...	Sergt.-Major Field.....	14th do.....	2,000	32 00
do 27...	Lieut. Murray.....	14th do.....	3,900	48 00
Total.....			47,630	766 10

*Military District No. 4, Ottawa.*

May 1...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 9...	Lieut. Chamberlin.....	43rd Battalion.....	500	8 00
do 11...	Dr. Malloch.....	Governor-General's Foot Guards.....	600	14 40
do 11...	Capt. Anderson.....	43rd Battalion.....	500	8 00
do 14...	Capt. Sparham.....	42nd do.....	4,000	64 00
do 17...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 17...	J. Armstrong.....	.....	1,000	16 00
do 17...	Capt. Perley.....	Engineer Force.....	560	8 96
do 19...	L. Le B Ross.....	Governor-General's Foot Guards.....	500	8 00
do 23...	Capt. Chamberlin.....	43rd Battalion.....	500	8 00
June 1...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
do 7...	do.....	do do.....	500	8 00
do 14...	do.....	do do.....	500	8 00
do 23...	A. P. Sherwood.....	Dominion Police.....	1,000	16 00
do 25...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	500	8 00
July 4...	do.....	do do.....	1,000	16 00
do 4...	Capt. Todd.....	do do.....	500	8 00
do 9...	A. P. Sherwood.....	Dominion Police.....	500	8 00
do 12...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 14...	Capt. Gillies.....	Gananoque Field Battery.....	1,000	24 00
do 17...	Capt. Grant.....	43rd Battalion.....	100	2 40
do 18...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	1,000	16 00
do 24...	Capt. Macdonell.....	42nd Battalion.....	500	8 00
do 26...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 27...	Sergt. Cawdron.....	do do.....	500	8 00
do 30...	Capt. Wright.....	43rd Battalion.....	1,500	24 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 4, Ottawa—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
Aug. 3...	Sergt. Cawdron.....	Governor-General's Foot Guards.....	2,000	32 00
do 3...	Lieut. Ross.....	do do .....	1,500	24 00
do 6...	A. P. Sherwood.....	Dominion Police.....	500	8 00
do 7...	Capt. Chamberlin .....	43rd Battalion.....	500	8 00
do 9...	Lieut. Ross .....	Governor-General's Foot Guards .....	1,000	16 00
do 13...	Metropolitan Rifle Assocn .....	.....	4,500	72 00
do 17...	Lieut. Gourdeau.....	Princess Louise Dragoon Guards.....	500	8 00
do 21...	Lieut. Ross.....	Governor-General's Foot Guards.....	1,000	16 00
do 29...	Major Walsh .....	43rd Battalion.....	500	8 00
Sept. 4...	Lieut. Motherwell.....	42nd do .....	1,000	16 00
do 12...	Sergt. Cawdron .....	Governor-General's Foot Guards.....	1,000	16 00
do 12...	Lieut. Motherwell .....	42nd Battalion..... M.H.	1,000	24 00
do 19...	Lieut. Coulter.....	do .....	1,000	16 00
do 21...	Lieut. Motherwell .....	do .....	1,000	16 00
do 24...	A. P. Sherwood .....	Dominion Police.....	500	8 00
do 24...	C. N. O'Meara .....	Militia Department..... M.H.	100	2 40
do 26...	Lieut. Thompson.....	Governor-General's Foot Guards..... M.H.	400	} 18 40
do 26...	do .....	do do .....	550	
do 27...	Sergt. Cawdron .....	do do .....	500	
Oct. 4...	Lieut. Motherwell.....	42nd Battalion.....	500	8 00
do 8...	Capt. Anderson .....	43rd Battalion..... Snider.	3,000	} 64 40
do 8...	do .....	do .....	600	
do 8...	do .....	do .....	200	
do 9...	Pte. Pink.....	do .....	100	2 40
do 10...	Prescott Rifle Association .....	.....	1,500	24 00
do 18...	Lieut. Parker .....	43rd Battalion .....	1,000	} 32 00
do 18...	do .....	do .....	500	
do 19...	Lieut.-Col. White.....	do .....	500	
do 25...	Lieut. Thompson .....	Governor-General's Foot Guards .....	500	8 00
do 26...	Capt. Chamberlin .....	43rd Battalion .....	500	8 00
do 29...	Capt. Wright .....	do .....	1,500	24 00
do 31...	Capt. Jowsey .....	do .....	500	8 00
Nov. 2...	Hon. A. P. Caron.....	..... Spencer.	400	4 00
do 7...	Sergt. Cawdron .....	Governor-General's Foot Guards.....	500	8 00
do 9...	Lieut. Bate .....	do .....	500	8 00
do 20...	Lieut. Imlay.....	56th Battalion.....	500	8 00
do 24...	Lieut. Motherwell .....	42nd do .....	500	8 00
Dec. 5...	Lieut. Thompson.....	Governor-General's Foot Guards .....	500	8 00
do 6...	Lieut.-Col. MacDonald.....	Militia Department..... M.H.	50	1 20
.....	Dominion Police.....	.....	1,500	24 00
.....	Dominion Rifle Association .....	..... Snider.	35,370	565 92
.....	do .....	..... M.H.	2,400	49 60
do 31...	Lieut. Gourdeau.....	Princess Louise Dragoon Guards.....	500	8 00
.....	Gunpowder, for Noon gun, Ottawa, 600 lbs.; friction tubes, 630 .....	.....	93,430	1,542 08
.....	Total.....	.....	93,430	1,706 00

*Military Districts Nos. 5 and 6, Montreal.*

March 22...	J. C. Marks .....	Caretaker, Rifle Range.....	560	8 96
do 27...	do .....	do .....	3,360	53 76
May 15...	do .....	do .....	3,920	62 72
do 21...	Captain Bowen.....	52nd Battalion, blank .....	1,000	10 00
do 22...	W. A. Morehouse.....	Sherbrooke Rifle Association.....	1,120	17 95

(B).—S. A. Ammunition issued on repayment during the Year 1883—*Con**Military Districts Nos. 5 and 6, Montreal—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
May 23...	Lient. Whitman.....	60th Battalion .....	1,680	26 88
do 25...	Lt.-Col. Ibbotson.....	53rd do .....	500	8 00
June 8...	J. C. Marks.....	Caretaker, Rifle Range.....	7,200	115 20
do 23...	do .....	do .....	7,200	115 20
do 30...	W. A. Morehouse .....	Sherbrooke Rifle Association. ....	3,000	48 00
July 17...	Lient. Wright.....	50th Battalion .....	2,400	38 40
do 19...	J. C. Marks .....	Caretaker, Rifle Range... ..Snider...	9,600	168 00
do 19...	do .....	do .....	600	
Aug. 1...	do .....	do .....	9,600	153 60
do 3...	Major Blaiklock.....	Province of Quebec Rifle Association, M.H. .	3,000	} 232 00
do 3...	do .....	do .....	10,000	
do 7...	Capt. Baker .....	58th Battalion .....	1,680	26 88
do 7...	Surgeon Smith .....	11th do .....	560	8 96
do 14...	Major Kennedy .....	Mounted Engineers .....	600	14 40
do 23...	do .....	do .....	560	8 96
do 23...	J. C. Marks.....	Caretaker, Rifle Range... ..do .....	9,000	} 158 40
do 23...	do .....	do .....	600	
Aug. 24...	do .....	do .....	9,600	153 60
do 28...	Capt. Baker .....	58th Battalion .....	1,120	17 92
Sept. 5...	Paymaster Johnson.....	51st do .....	2,680	43 00
do 13...	J. C. Marks.....	Caretaker, Rifle Range .....	4,800	76 80
do 13...	Capt. Sheppard .....	5th Regiment Cavalry.....	1,680	26 88
do 14...	Capt. Watts .....	54th Battalion .....	1,000	16 00
do 21...	J. C. Marks.....	Caretaker, Rifle Range.....	4,800	76 80
do 24...	Capt. Barr .....	6th Cavalry .....	1,000	16 00
do 25...	Lient. Wright .....	50th Battalion .....	560	8 96
do 27...	Major McFee .....	51st do .....	1,000	16 00
do 27...	Capt. Bowen .....	52nd do .....	500	8 00
Oct. 1...	Capt. Sheppard .....	5th Regiment Cavalry .....	1,000	16 00
do 2...	Lt.-Col. Gilmour .....	60th Battalion .....	1,600	24 00
do 3...	Capt. Brooks .....	79th do .....	1,000	16 00
do 4...	J. C. Marks .....	Caretaker, Rifle Range.....	3,930	62 88
do 4...	Lient. Whitman .....	60th Battalion .....	1,500	24 00
do 5...	Lient. Finlayson.....	Montreal Garrison Artillery.....	500	8 00
do 9...	Capt. Weightman .....	11th Battalion .....	2,500	40 00
do 13...	J. C. Marks .....	Caretaker, Rifle Range .....	600	14 00
do 13...	R. J. Spearing .....	Sherbrooke do .....	500	8 00
do 20...	Capt. James Smith .....	11th Battalion .....	500	8 00
Nov. 5...	W. A. Morehouse.....	Sherbrooke Rifle Association .....	500	8 00
do 7...	J. C. Marks .....	Caretaker, Rifle Range.....	200	} 36 80
do 7...	do .....	do .....	2,000	
do 13...	J. Larued .....	Secretary, Rifle Association .....	560	8 96
Dec. 8...	Major McFee .....	51st Battalion .....	1,000	16 00
Ball.....			123,270	2,017 27
Blank .....			1,000	10 00
Total .....			124,270	2,027 27

*Military District No. 7, Quebec.*

Mar. 2...	Major Scott.....	8th Royal Rifles.....	500	8 00
do 16...	Capt. Russell.....	do .....	560	8 96
do 21...	Major Scott.....	do .....	2,000	32 00
do 28...	do .....	do .....	2,000	32 00
April 11...	do .....	do .....	1,000	16 00

(B).—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 7, Quebec—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
April 21...	Capt. Holloway .....	8th Royal Rifles.....	1,000	16 00
do 21...	Capt. Miller .....	do .....	500	8 00
do 26...	Capt. Russell .....	do .....	1,000	16 00
do 27...	Major Scott.....	do .....	2,000	32 00
May 1...	Capt. Wurtelle.....	do .....	500	8 00
do 2...	Capt. Russell.....	do .....	560	8 96
do 5...	Major Scott.....	do .....	1,000	16 00
do 8...	Capt. Russell .....	do .....	560	8 96
do 12...	Major Scott.....	do .....	1,000	16 00
do 22...	Lt.-Col. Scott.....	do .....	1,000	16 00
June 1...	do .....	do .....	1,000	16 00
do 6...	do .....	do .....	1,000	16 00
do 14...	do .....	do .....	1,000	16 00
do 22...	do .....	do .....	1,000	16 00
do 27...	do .....	do .....	1,000	16 00
do 28...	do .....	do .....	1,500	24 00
July 14...	do .....	do .....	1,000	16 00
do 18...	Major Demers.....	do .....	1,000	16 00
do 26...	Surgeon Belanger.....	61st Battalion .....	500	8 00
do 27...	Lt.-Col. Scott .....	8th Royal Rifles .....	1,000	16 00
do 28...	Capt. Miller.....	do .....	500	8 00
do 31...	Major LeSueur.....	Stadacona Rifle Association .....	3,360	53 76
Aug. 4...	A. Couillard.....	Rimouski do .....	1,000	16 00
do 8...	Lt.-Col. Scott .....	8th Royal Rifles .....	1,000	16 00
do 9...	Major Stewart.....	Megantic Rifle Association .....	3,750	60 00
do 9...	J. Michaud.....	Temiscouata do .....	2,000	32 00
do 9...	Dr. Fiset.....	do .....	150	2 40
do 13...	Lt.-Col. Scott .....	8th Royal Rifles .....	1,000	16 00
do 18...	do .....	do .....	2,000	32 00
do 18...	A. Couillard .....	Rimouski Rifle Association .....	1,000	16 00
do 22...	J. Michaud.....	Temiscouata do .....	2,000	32 00
do 23...	Lt.-Col. Scott .....	8th Royal Rifles.....	1,000	16 00
do 30...	do .....	do .....	1,000	16 00
Sept. 3...	Paymaster J. Blondeau...	87th Battalion .....	1,150	18 40
do 4...	J. Michaud .....	Temiscouata Rifle Association.....	3,000	48 00
do 4...	Capt. Bégin .....	17th Battalion .....	1,000	16 00
do 7...	Major Fournier .....	do .....	500	8 00
do 12...	Lt.-Col. Scott .....	8th Royal Rifles.....	1,000	16 00
Oct. 1...	do .....	do .....	1,000	16 00
Dec. 21...	do .....	do .....	250	4 00
Total.....			52,810	845 44

*Military District No. 8, St. John, N.B.*

April 24...	Capt. Blois.....	62nd Battalion .....	1,000	16 00
May 10...	Capt. Langstroth.....	8th Cavalry .....	500	8 00
do 16...	Capt. Hartt .....	St. John Rifle Company .....	2,000	32 00
June 6...	do .....	do .....	4,000	64 00
do 28...	do .....	York Co. Rifle Association .....	560	8 96
July 6...	Lieut. McIntyre.....	St. John Rifle Company .....	2,000	32 00
do 11...	J. Hunter .....	St. John Rifle Association .....	500	8 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 8, St. John, N.B.—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				\$ cts.
July 14...	Lieut. McRobie .....	62nd Battalion .....	500	8 00
do 16...	Lieut. Goddard .....	do .....	2,000	32 00
do 16...	do .....	do .....	1,000	16 00
do 31...	Capt. Langstroth .....	8th Cavalry .....	1,500	24 00
Aug. 4...	Capt. Blois .....	62nd Battalion .....	2,000	32 00
do 7...	Lt.-Col. Underhill .....	New Brunswick Brigade Garrison Artillery.	1,000	16 00
do 8...	Lieut. McIntyre .....	St. John Rifle Company .....	1,000	16 00
do 11...	J. A. Watson .....	York Co. Rifle Association .....	1,000	16 00
do 13...	D. R. McElmon .....	Westmoreland Co. Rifle Association .....	2,500	40 00
do 13...	H. N. Bourne .....	.....	800	12 80
do 17...	O. R. Arnold .....	New Brunswick Provincial Rifle Association	12,000	192 00
do 29...	Capt. Wetmore .....	74th Battalion .....	560	8 96
do 30...	Major Likely .....	.....	1,000	16 00
do 31...	Sergt.-Major Hunter .....	.....	1,000	16 00
Sept. 3...	Lt.-Col. Underhill .....	New Brunswick Brigade Garrison Artillery.	2,000	32 00
do 7...	Major Arnold .....	Provincial Rifle Association, M.H. ....	500	12 00
do 12...	Capt. Wetmore .....	74th Battalion .....	1,000	16 00
do 17...	Capt. Hartt .....	York Co. Rifle Association .....	1,000	16 00
Oct. 18...	Capt. Blois .....	62nd Battalion .....	1,000	16 00
do 30...	D. R. McElmon .....	Westmoreland Co. Rifle Association .....	1,000	16 00
Dec. 13...	do .....	do .....	1,000	16 00
Total .....			45,920	738 72

*Military District No. 9, Halifax, N.S.*

Jan. 22...	Lieut.-Col. Mowbray .....	1st Brigade Garrison Artillery .....	500	8 00
May 11...	do Kaulback .....	75th Battalion .....	5,000	80 00
do 11...	Capt. Jolly .....	Yarmouth Garrison Artillery .....	1,000	16 00
do 23...	do Egan .....	63rd Battalion .....	1,000	16 00
do 25...	Lieut.-Col. Mowbray .....	1st Brigade Garrison Artillery .....	500	8 00
do 26...	Capt. Bland .....	do .....	500	8 00
do 30...	Lieut.-Col. Mackintosh .....	63rd Battalion .....	500	8 00
June 7...	Capt. Bland .....	1st Brigade Garrison Artillery .....	1,000	16 00
do 8...	do .....	do .....	500	8 00
do 11...	Lieut.-Col. Bremner .....	66th Battalion .....	1,000	16 00
do 12...	Capt. Lawrence .....	78th do .....	500	8 00
do 20...	do Bland .....	1st Brigade Garrison Artillery .....	1,000	16 00
do 22...	do Egan .....	63rd Battalion .....	2,000	32 00
do 22...	Lieut.-Col. Mowbray .....	1st Brigade Garrison Artillery .....	500	8 00
do 22...	do Bremner .....	66th Battalion .....	1,000	16 00
do 23...	Major Purcell .....	2nd Brigade Garrison Artillery .....	500	8 00
.....	Capt. Egan .....	63rd Battalion .....	2,000	32 00
July 3...	do Bland .....	1st Brigade Garrison Artillery .....	1,500	24 00
do 5...	do Egan .....	63rd Battalion .....	2,000	32 00
do 9...	Lieut.-Col. Bremner .....	66th do .....	1,000	16 00
do 10...	Capt. Bland .....	1st Brigade Garrison Artillery .....	500	8 00
do 19...	Lieut.-Col. Bremner .....	66th Battalion .....	1,000	16 00
do 19...	do Mackintosh .....	63rd do .....	500	8 00
do 21...	Capt. Bland .....	1st Brigade Garrison Artillery .....	1,000	16 00
do 21...	Lieut. C. H. Dimoch .....	78th Highlanders .....	1,000	16 00
do 24...	Capt. Bland .....	1st Brigade Garrison Artillery .....	500	8 00
do 26...	Lieut. Dimoch .....	78th Highlanders .....	500	8 00
do 27...	Capt. Bland .....	Halifax Co. Rifle Association .....	3,500	56 00
do 27...	Major Egan .....	63rd Battalion .....	2,000	32 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District No. 9, Halifax, N.S.—Concluded.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1883.				
Aug. 3...	Capt. Barnhill.....	78th Highlanders.....	1,000	16 00
do 3...	Lieut.-Col. Bremner ....	66th Battalion.....	1,000	16 00
do 10...	do Lydiard .....	Rifle Association.....	500	8 00
do 15...	Capt. Lawrence.....	78th Highlanders.....	500	8 00
do 17...	Major Egan.....	63rd Battalion.....	2,000	32 00
do 28...	do .....	do .....	2,500	40 00
do 29...	Capt. Bland.....	1st Brigade Garrison Artillery.....	200	4 80
do 31...	do Weston.....	Provincial Rifle Association.....	16,500	} 297 60
do 31...	do do .....	do do .....	1,400	
do 31...	Major Black.....	Cumberland Provincial Battalion.....	1,000	16 00
Sept. 5...	Lieut.-Col. Bremner.....	66th Battalion .....	1,000	16 00
do 11...	Capt. Jolly.....	Yarmouth Garrison Artillery.....	1,000	16 00
do 17...	Paymaster Miller.....	.....	800	12 80
do 18...	Major Egan.....	63rd Battalion.....	2,000	32 00
do 19...	Lieut.-Col. Bremner.....	66th do .....	3,500	56 00
do 24...	Major Egan.....	63rd do .....	2,000	32 00
do 26...	Capt. Lawrence.....	78th Highlanders.....	1,000	16 00
Oct. 8...	Lieut.-Col. Mowbray.....	1st Brigade Garrison Artillery.....	1,000	16 00
do 15...	Major Egan.....	63rd Battalion.....	3,009	48 00
do 16...	Lieut. Dimoch.....	Hants Co. Rifle Association.....	1,500	24 00
do 17...	Capt. Gordon.....	Pictou Garrison Battery.....	500	8 00
Total.....			77,900	1,259 20

*Military District No. 10, Winnipeg, Manitoba.*

1883.				
Jan. 18...	Manitoba Rifle Assoc'n...	M. H.	600	14 40
May 17...	do .....	M. H.	600	} 46 40
do 17...	do .....	Snider	2,000	
June 18...	Brandon Rifle Association .....	.....	2,000	32 00
do 21...	G. W. Street.....	Manitoba Rifle Association .....	2,000	32 00
July 7...	do .....	do .....	2,000	32 00
do 12...	J. Hingston Smith .....	Rifle Association.....	M. H.	} 46 40
do 12...	do .....	do .....	Snider	
do 18...	Lieut. G. P. Bliss .....	do .....	2,000	32 00
do 26...	G. W. Street.....	do .....	M. H.	} 46 40
do 26...	do .....	do .....	Snider	
do 27...	J. H. Smith.....	do .....	2,000	32 00
Aug. 2...	G. W. Street.....	do .....	2,000	32 00
do 3...	L. Buchan.....	do .....	2,000	32 00
do 7...	J. H. Smith .....	do .....	M. H.	} 139 20
do 13...	G. W. Street.....	do .....	M. H.	
do 13...	do .....	do .....	Snider	} 139 20
do 21...	do .....	do .....	M. H.	
do 30...	L. Buchan.....	do .....	2,000	32 00
Sept. 10...	Lieut. Bliss.....	do .....	2,000	32 00
Dec. 10...	J. H. Smith.....	do .....	2,000	32 00
Total.....			38,294	656 00

(B.)—S. A. Ammunition issued on repayment during the Year 1883—*Con.**Military District, No. 11, Victoria, B.C.*

Date.	Purchaser.	Corps.	Rounds.	Amount.
1882.				\$ cts.
Nov. 13...	E. Fletcher.....	B. C. Rifle Association .....	5,880	94 08
do 20...	do .....	do .....	2,100	83 60
do 30...	G. T. D. Simpson.....	do .....	840	40 32
1883.				
May 3...	Provincial Government.....		4,200	67 20
do 13...	H. S. Roebuck .....	Victoria Rifle Association .....	320	5 12
June 12...	C. N. Trew.....	New Westminster do .....	2,100	33 60
July 3...	Major Holmes.....	Victoria do .....	2,000	32 00
do 17...	do .....	Nanaimo do .....	4,000	64 00
do 19...	H. Roebuck.....	Victoria do .....	2,000	32 00
do 20...	C. N. Trew.....	New Westminster do .....	4,000	64 00
Aug. 1...	H. Roebuck.....	Victoria do .....	2,000	32 00
do 9...	E. Fletcher.....	Provincial do .....	8,000	128 00
do 23...	Capt. McDonell.....	do do .....	3,860	61 80
Sept. 10...	E. Fletcher.....	do do .....	4,620	73 92
do 25...	H. S. Roebuck .....	Victoria do .....	2,000	32 00
Oct. 27...	do .....	do do .....	2,000	32 00
Total .....			49,920	825 64

*Military District No. 12, Charlottetown, P.E.I.*

Dec. 1...	Capt. Owen .....	3rd Battery Garrison Artillery .....	1,250	20 00
do 9...	Capt. D Stewart .....	82nd Battalion .....	500	8 00
do 11...	Capt. McRae.....	do .....	1,000	16 00
do 22...	Capt. Mabon.....	do .....	500	8 00
do 22...	Capt. Alexander.....	do .....	500	8 00
do 23...	Capt. McLeod .....	do .....	500	8 00
do 29...	Capt. McRae.....	do .....	1,000	16 00
Feb. 22...	Capt. Alexander.....	do .....	1,000	16 00
do 2...	Capt. Mabon .....	do .....	500	8 00
do 3...	Capt. Alexander.....	do .....	500	8 00
April 22...	do .....	do .....	500	8 00
do 3...	George Crockett.....	do .....	500	8 00
May 25...	Major Dogherty.....	Charlottetown Engineers.....	2,000	32 00
June 5...	Capt. Alexander.....	82nd Battalion .....	500	8 00
do 19...	Capt. Owen .....	3rd Battery Garrison Artillery .....	1,000	16 00
do 29...	Capt. Alexander.....	82nd Battalion .....	500	8 00
do 30...	Lieut. A. Horne .....	Engineer Company.....	1,500	24 00
July 10...	Lieut. Bertiam.....	82nd Battalion .....	500	8 00
do 21...	Major Dogherty.....	Engineer Company .....	1,000	16 00
Aug. 1...	Capt. Owen .....	3rd Battery Garrison Artillery .....	1,000	16 00
do 2...	Major Dogherty .....	Engineer Company .....	1,000	16 00
do 10...	Capt. McLeod .....	82nd Battalion .....	500	8 00
do 11...	Major Dogherty .....	Engineer Company.....	6,000	96 00
do 28...	Lieut. Horne .....	do .....	1,000	16 00
do 31...	Capt. Owen .....	3rd Battery Garrison Artillery .....	1,000	16 00
Sept. 13...	Capt. McRae .....	82nd Battalion .....	500	8 00
Oct. 6...	Lieut. Horne.....	Engineer Company .....	1,000	16 00
do 15...	J. A. Longworth.....	Rifle Association.....	2,000	32 00
do 19...	Capt. Alexander.....	82nd Battalion .....	1,000	16 00
do 31...	Capt. McRae.....	do .....	500	8 00
Nov. 2...	Capt. McLeod .....	do .....	500	8 00
Dec. 21...	Capt. Henderson.....	do .....	500	8 00
			31,750	508 00

## RECAPITULATION.

Military Districts.		Rounds.	Amount.
Military District No. 1, London .....		25,100	401 60
do	2, Toronto .....	124,000	2,000 00
do	3, Kingston .....	47,630	786 10
do	4, Ottawa .....	93,430	1,542 08
do	5 } Montreal .....	123,270 } Ball ....	2,027 27
do	6 } .....	1,000 } Blank ..	
do	7, Quebec .....	52,840	845 44
do	8, St. John, N.B. ....	45,920	738 72
do	9, Halifax, N.S. ....	77,900	1,259 20
do	10, Winnipeg .....	38,294	656 00
do	11, Victoria, B.C. ....	49,920	825 64
do	12, Charlottetown, P.E.I. ....	31,750	508 00
Ammunition—Ball.....		710,054	
Blank.....		1,000	11,570 05
Gunpowder and friction tubes.....			191 82
Total.....		711,054	11,761 87

	Rounds.
Snider ball.....	688,504
do blank.....	1,000
Martini-Henry ball.....	20,950
Spencer rifle ball.....	6,600
	<hr/> 711,054

## [C.]

## RETURN of Gunpowder and Friction Tubes issued for Practice and Salutes during the Year 1883.

Military Districts.	Stations.	Corps.	Gunpowder.	Friction Tubes.
			Lbs.	No.
No. 1 .....	London .....			
No. 2 .....	Toronto .....	Field and Garrison Batteries of Artillery..	3,972	1,850
No. 3 .....	Kingston .....	do do do and		
		Royal Military College.....	10,565	1,718
No. 4 .....	Ottawa.....	Field Battery of Artillery and Salutes.....	655	515
Nos. 5 & 6.	Montreal .....	Field and Garrison Batteries of Artillery and Salutes .....	1,272	555
No. 7 .....	Quebec .....	do do do ...	8,289	1,639
No. 8 .....	St. John, N.B.....	do do do ...	1,744	885
No. 9 .....	Halifax, N.S.....	do do do ...	1,556	250
No. 10.....	Winnipeg .....	Field Battery and Salutes .....	600	485
No. 11.....	Victoria, B.C.....	Garrison Batteries and Salutes .....	993	25
No. 12.....	Charlottetown, P.E.I.	do do .....	1,733	214
		Total .....	31,379	8,136

J. MACPHERSON, Lieut.-Colonel,  
Director of Stores and Keeper of Militia Properties.

The Honorable  
The Minister of Militia and Defence,  
Ottawa.

31st December, 1883.

## APPENDIX No. 12.

## GOVERNMENT CARTRIDGE FACTORY.

REPORT ON OPERATIONS CARRIED ON AT THE GOVERNMENT CARTRIDGE FACTORY,  
FROM THE INCEPTION OF MANUFACTURE, UP TO THE 20TH SEPTEMBER, 1883.

QUEBEC, 20th September, 1883.

*To the Deputy Minister of Militia and Defence.*

SIR,—According to instructions received, dated Ottawa, 17th inst., I have the honor to report as follows:—

## I.—MACHINERY.

The machinery and apparati for the Government Cartridge Factory, the reception of which was advised from time to time as received from England, and from manufacturers here, was put in and completed in November, 1882. The last to be put up and completed were: the heating and drying apparati of the Fulminate Buildings, and the targets on the range at the Cove Fields.

*Spare and Duplicate Pieces therefor.*

The plant at present comprises about seventy machines and apparati.

None of these machines were received with spare pieces of any description; the estimates did not provide for spare duplicate punches and dies, &c. These spare pieces had to be made in the workshop of the Cartridge Factory before any manufacturing operations could be attempted.

This work, on spare pieces of machinery, began in March, 1882, due authority therefor having been granted, and was carried on uninterruptedly till the latter end of September, 1882.

No more than four machinists were employed at a time at that special work. Herewith is a list marked A 1, of machinery upon which this work extended.

Manufacturing operations were not, in consequence, begun until the month of October, 1882.

*Tools and other Implements for the Workshop.*

The plant received from England for the workshop of the Factory comprised only lathes, drilling and shaping machines, without any tools whatever. It was therefore necessary to obtain these from the trade in Canada. Vices, files, cutters, rimmers, drills, &c., mostly of Canadian manufacture, were purchased, and a number of special tools had to be made in the workshop to make spare parts alluded to above, and also keep the machinery in repair when manufacturing operations had begun. Herewith annexed is a list of such tools and appliances provided for the above purposes, marked A 2.

*Subsequent Repairs and Alterations to Machinery.*

Since the inception of manufacture many and considerable defects in the machinery, which developed under work, were discovered. As the remedying of these defects was gradual and had to be done in the course of manufacture, involving expenditure that could hardly have been made chargeable to a "general expenditure

and repairs account," in connection with the manufacture of cartridges, I adopted the mode of issuing special orders, which formed, each, heads of special accounts for each repairs and alterations, when the amount was at all important. Annexed is a list, marked B, of such orders, and the expenditure thus entailed, with remarks to each order. Though on the above list most of those alterations and repairs are noted in the remarks, and also their object, still I must notice more specially those that were performed on the following machines.

#### *Bullet Machine No. 1.*

This machine was received with a cutting plate, the holes of which were too large and did not grip sufficiently the "lead rod" when cutting it off. Steel bushes had to be inserted in the cutting plate to secure a tighter fit.

There was also an irregular action in the feeding; this had to be remedied by adding a spring action, which had been entirely omitted by the manufacturers, to regularize the feed and produce "blanks" of almost uniform weight. Until these defects were remedied several punches and dies were overstrained, causing many repairs which would not otherwise have been required. The machine now works well.

#### *Bullet Machine No. 2.*

This machine, for compressing the bullet into shape, came with dies of unsuitable form for both the "canneluring machine" and the "choking machine." It produced a bullet fully  $\frac{1}{100}$  larger in diameter than the service Snider bullet, and did not even fit the gauges supplied with the machinery. This entailed many changes in the bullet machinery of subsequent processes, to obtain a bullet of suitable length, weight and shape.

#### *Base Discs Punching Machine.*

The machine was found not to be workable for any length of time, as it was constructed. A whole set of feeding rollers, which were more detrimental than otherwise, has been removed; one single set now does the work quite satisfactorily.

A new channel for the burrs punched out of the centre of the base discs, had to be made. In the machine, as originally constructed, the burrs were expected to turn a sharp angle, when piled one upon the other, in a narrow channel, barely more than their own diameter, and fall clear of the machine—an utter mechanical impossibility, as it proved. The above defect was the cause of many stoppages and breakages which are now entirely obviated. This machine now runs daily 30,000 discs, without any repairs except those of fair "wear and tear."

#### *Countersink Base Discs Machine.*

The countersink base discs machine also gave little satisfaction at first. The spindle of the "feed table" was out of truth, and as a result the discs were not countersunk central; the "cam" action on the feed table was irregular, the lever transmitting this action not being of proper length and not attached on the bed of the machine at a suitable point. The heavy weights provided for working the "pawls" and "drill slide" were a strain on the machine. Springs were substituted therefor, and the machine, after all those alterations, now works well.

#### *Machine for Pressing Component Parts.*

The machine for pressing component parts of the cartridge case had to be considerably altered. As received, the "feed table" was revolving on a spindle resting on a spring in a countersunk recess. This had to be taken out, a new spindle and bush provided, to give a rigid bearing to the feed table spindle. The oscillations of the feed table, as originally devised, caused an irregular pressing of the cartridge

case, for if the "pressing punch" was lowered to press the cartridge up to gauge, the chances were that the cap chamber was not in its place, and the pawl devised to keep the feed plate at rest during the pressing not acting properly, a smash occurred, or at the best the base disc got nipped, or the base cups crumpled and the cartridge case useless.

The principle of the machine is faulty, for the pressure and the resistance to the pressure are simultaneous, and exert themselves to expand or draw out the cartridge case out of proper shape. The cartridge case had to be pressed before getting into the mould that should have maintained its shape, and, as a consequence, the full depth of the case could not be obtained. This has been obviated by means of bell-mouthed moulds, which secure the discs, being pressed on to the case centrally; no loss occurs from excentric cases, as formerly. A further improvement was made by substituting a simple ratchet for a very complicated one. In fact, thirty-two pieces were removed from the machine, and two substituted therefor, with manifest advantage.

#### *Cap Chamber and Percussion Cap Machines.*

These machines, for extending the percussion cap, and for the cap chamber extending, were received provided with weak springs to the nippers, and the ones at present on the machines put in their places—(seven.)

#### *Pellet Pressing Machine.*

The pellet pressing machine had to be provided with new punches and dies to press the paper pellets conical, the dies, &c., provided with the machines pressed it cylindrical and as a consequence the crimping of the "case body" was delayed; as a conical pellet is easier to insert and presses as well.

#### *Rifle Rests.*

The rifle rests for proof of ammunition came with slides unsuitable for Snider rifles. Though I tried to utilize them, I had to put them aside, after several alterations, and use the old pattern firing stocks and slides, adapted to the rifle rests received.

#### *Shifters and Pulleys.*

If it be added that the shifters of all the machinery had to be altered to suit the position of the line shafts and the incline of the belting, and also that pulleys on the main shaft had to be changed and altered to give proper speed to the different machines, though the pulleys had been placed according to directions of the manufacturer of the *plant*, a good idea will have been obtained of the most important alterations and modifications the *plant* had to be put through.

#### *Blank Ammunition Machines.*

Two kinds of blank ammunition are now in the service, the "converted blank" and the "paper blank." The "converted blank" is made from burned or otherwise damaged cases, cut down to suitable length and top-turned after filling. The "paper blanks" are special ammunition entirely, and require special machinery. None of the machinery for paper blank had been obtained in England, and when an order was received in May last for 100,000 rounds of blank, I had to make this special machinery and alterations for the purpose. Annexed is a list of these additions and alterations, marked C. The factory is now provided with the necessary appliances to manufacture further supplies.

#### *Cap Varnishing and Filling Machines.*

The cap filling and cap varnishing require still overhauling to be in perfect working order, the most urgent repairs and alterations only have as yet been done on them.

## GENERAL REMARK.

All this reconstruction, in a small way, if I may so express it, had to be carried on in the workshop originally provided for repairs only, and many special devices had to be improvised for the object, much labour and time diverted from manufacturing exigencies, for the above purpose.

## II.—MATERIAL.

The raw material special to the manufacture of Snider service ball ammunition was ordered in England, sufficient for 1,250,000 rounds, except such articles as could eventually be procured in Canada, for which the order was limited to what would suffice to manufacture 250,000.

The following were the articles imported for a quarter million rounds only :

Paper of three kinds. However a subsequent order completed the total quantity received to the 1,250,000 rounds, as no manufacturers here would undertake to supply any.

Oils—Linseed, Neats' foot, raw and boiled.

Wax—Nos. 1 and 2, for lubricating bullets.

Powder—R.F.G., Waltham Abbey.

Wine, spirits, mytilated, for cements.

A Canadian manufacturer, Mr. Rolland, of St. Jérôme, near Montreal, has since been supplied with samples to try manufacturing special papers required.

These materials were received about the middle of June, 1882, and stored at the factory. The supply of paper was completed last winter. The powder was stored at the Citadel, except such as was and is required for immediate use at the Laboratory.

Herewith annexed is a list of articles of raw materials received, marked D, and a list of material (special) expended to date of last inventory, marked E and 1, 2. Explosive compounds are not included, it being unsafe to weigh them :

Raw material (special) received .....	\$13,874 31
do do expended .....	4,981 96

Balance .....\$ 8,892 36

## III.—PERSONNEL.

The personnel of the factory can be divided in two classes :

1. Those who are paid an invariable price by the day or by the month.—(See accompanying list, marked F 1).

2. Those who earn piece work wages. This class receives also a fixed price to a certain extent, as may appear on List F 2, annexed, but only when, from machinery getting out of order under work, or uncontrollable cause, they are prevented from earning piece work wages and shifted to more pressing work for the advantage of manufacture, though unremunerative to those operatives. This method, combining the advantage of piece work, when possible, and at the same time paying a reasonable price for useful work and attendance otherwise unremunerative, was found the only means of retaining trained operatives who, before this, left as soon as qualified, through disgust at constant stoppages. This also prevented breakage to machinery by new hands taken on to replace trained ones, a real economy, as it proved.

All the employees of the factory, the foreman excepted, were born in Canada. Herewith a return nominal and denominational of the employees, marked C.

I also include a piece work price list marked H, corrected up to date.

## IV.—THE MANUFACTURE OF AMMUNITION.

The manufacture of Snider B.L. ammunition is difficult and complicated. It comprises over fifty different operations, partly hand work, but mostly machine work, and on special machines, different from one another both in construction and in operation.

The system of manufacture fixed upon up to the present has been the gradual building up of the Snider cartridge instead of carrying on all operations simultaneously, therefore working only part of the machinery at a time, with a limited number of hands.

Thus, operatives not only have to learn to manage one or two machines, but perhaps five or six, and be put to more operations than one. It therefore takes more time to train operatives, and perfection cannot be attained in each operation owing to their multiplicity and variety in so short a time, as if the division of labor was greater. A favorable feature is noticed at this moment in the factory, in so far as good hands which left discouraged by unremunerative returns for their work, now return finding that the machinery, being in better order, they can earn sufficient pay.

There is, in consequence, a manifest progress in the quality of the work and in the quantity produced.

Thus, an order for 250,000 rounds of ball ammunition was issued immediately at the completion of an order of 100,000 rounds of blanks, towards the beginning of August, and more than two-thirds of the work has now been performed and not seven weeks have elapsed since.

There is every reason to expect that, with the improvements I am now enabled to report, there will be no difficulty in manufacturing at the rate of 1,000,000 rounds per annum, with the present establishment.

A statement of quantities of work performed at the factory from October last up to date, is annexed herewith, marked J.

#### *Quality and Description of Powder used.*

The powder used for the service ball ammunition has been, till now, R.F.G. from the Royal Powder Factory at Waltham Abbey. The powder used for blanks for the last lot, supplied was Canadian powder, supplied by the Hamilton Powder Company.

#### *Examination and Proof of Work.*

All work during the manufacture is frequently gauged and thoroughly examined before being passed from one process to another. Frequent inspections and enquiries during this period guarantee that all parts of the cartridge are made to gauge within correct manufacturing limits. During the finishing processes the ammunition is tried by firing a percentage. No daily proof of work, such as in larger establishments, can be carried on here. Time and the number manufactured daily do not allow the system to be adopted extensively, but frequent inspections and the opening and examining of a number of cartridges daily, ensure compliance with directions issued for guidance in the finishing processes.

The figure of merit of every diagram of targets fired, is worked out. None of the figures of merit obtained have been under a fair average, and in some cases been higher (10·9) which is as good as Snider ammunition has obtained.

I fail to find in every examination or proof carried on, that any defect likely to impair the efficiency of the ammunition manufactured had been allowed to pass to final examination. I am, therefore, of opinion, that the cartridges, both ball and blank, manufactured at the Cartridge Factory are serviceable in every respect, and compare favorably with similar ammunition of the latest marks produced elsewhere, while it is superior to the Snider ammunition now in store in the Dominion.

Some of the experiments alluded to were carried on in the depth of winter, as was also the manufacture of the first lot of ammunition produced, in fact, under excessive difficulties, still none of the diagrams of proof would warrant an opinion adverse to that expressed above, on the point of the ammunition manufactured being serviceable in every respect.

#### *Instruments for Testing Powder and Ammunition.*

During the year, valuable instruments for testing powder and ammunition were received, viz.:—1 LeBoulangé chronograph and 1 Bianchi densimeter, complete.

These two instruments were put in the office building of the factory. I have been able to test gun powders of different makes\* submitted for report and also ammunition, including a lot of damaged ammunition in store at this station.

*Range on the Cove Fields for Testing Cannon Powder.*

A range for testing cannon powder for velocity has been prepared on the Cove Fields for the proof of R. L. G. powder in accordance with instructions received.

V—ADMINISTRATION.

Under this head are included the interior management, system of recording work and keeping accounts of both wages and material—controlling the issues and recording the receipts of supplies of all kinds.

*Interior Management.*

The hours of work are from 7 a.m. to 12 noon, and from 12.30 p.m. till 6 p.m., at all seasons. On Saturdays, work is stopped at 3 p.m., and the workmen paid off.

This forms a total of sixty working hours in a week of six working days. At 7 a.m. the main gate is opened to admit the employees, and at 7.05 a.m. it is again closed, and no one admitted unless sufficient reasons to excuse the irregularity are given.

No work is performed on legal holidays, as observed in the Province of Quebec.

When it becomes necessary to employ machinists or other employees, extra hours, their time counts time and a half, according to the rules of local manufacturing establishments. The extra time is authorized only when work of urgent nature has to be performed and which could not be completed during working hours, to prevent stoppages.

The week for piece work runs from Thursday to Thursday, and from Saturday to Saturday for employees at fixed salaries. It gives time to prepare piece work pay sheets—all are paid on Saturdays. Time lost for absence for fractions of days is deducted at so much per hour at the rate of daily pay. This rule applies to all hands at so much per diem, whether at fixed daily wages in first or second class. The foreman and clerks are paid monthly.

*Mode of Recording Piece Work.*

The work from one operation to another is put into barrels or boxes containing a given quantity of work reckoned according to a scale similar to that followed at Woolwich arsenal—some work is reckoned by weight and some again by counting pieces. Each barrel or box contains, with the work, a "work ticket," on which appears the name of the operative, the time taken to perform the work and the quantity.

The time and quantities of each description of work is entered in the "Overlookers" book by the Overlooker in charge of the operation, and to each operative. These books are sent to the office on Thursdays, in time to make out the pay-lists for the Saturday following. The amounts of work are priced and totalized, and pay issued to each operative in accordance therewith.

The work-ticket system has the advantage of making it possible to trace any defects in the processes of manufacture to the individual "gauger" or examiner in fault.

This retracing is continuous up to the moment of packing, when all defects should then have been noticed. For any exterior defects discovered during proof the "gauger" who performed the final examination is held responsible.

*Mode of Recording Work in the Workshop.*

A daily work book is kept for the machinists, engineman and labourers employed at a fixed daily salary.

In this book is entered the time each machinist has been employed at such work on such a machine. From this record the wages for repairs, &c., to machinery are distributed to the different orders issued for those repairs, when the amount thereof is important, or to a general repairs and expenditure account, when of general nature, in the ordinary run of fair wear and tear, and cannot be posted to a particular order. As a general rule anything under \$5 in total amount is not charged to a special order. By issuing orders for the manufacture of determined quantities of ammunition at a time, and charging all material issued and wages paid for those particular orders, control on expenditure is more regular and easier; any waste can at once be discovered and checked.

*Accounts.*

The following system of keeping accounts in the office of the factory is adhered to:—

1. A store ledger, for materials and tools and appliances issued from or into general store—(A).
2. Ledger of expenses in material and wages—(B).
3. Inventory book of machinery, tools and appliances of the factory—(C).
4. Order book, containing details of work of a special nature to be performed—(D).
5. Pay-list book—(E).

*Store Ledger.*

In the store ledger are entered all articles of raw material, tools and appliances at the date of receipt from suppliers, with prices of each and quantities; also all articles of raw material, tools and appliances appear therein which are issued for manufacture, or the keeping in order or maintenance of the material and machinery of the factory. The ledger also shows in what manner the articles issued have been utilized and distributed, appearing as having been charged in the B ledger for expenses of material (No. 2), or in the inventory book (No. 3)—(C).

*Ledger B.*

In Ledger B are kept two separate accounts:—

- 1st. One comprising all expenses in wages and material incurred to fulfill orders detailed in the order book D, described hereafter, each order with a serial number.
- 2nd. The other comprising all expenses in wages and material incurred for repairs not exceeding \$5 in total amount, or not otherwise specially ordered when under that value, and also all expenses that cannot be charged to a special account, such as wages of enginemen, repairs to steam engine, lubricating oil for line shafts and other expenses of a general nature, that can be charged only by adding a percentage to the priced value of ammunition produced.

*Inventory Book C.*

In the inventory book C is given a detail of all machines, tools, &c., of the factory, of all their separate parts; also the detail of all tools and appliances in use in the workshop.

All the machines, tools, appliances, &c., mentioned therein, are localized by buildings, rooms, flats and sections. There is also a small store where all such tools as do not belong to any machine in particular, and subject to great wear and become soon unserviceable, such as files, chisels, cutters, &c., are returned when not in use;

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these are charged when unserviceable to the general repairs account, unless it can be determined that they have become entirely unserviceable in fulfilling a special order; in that case it is charged to the special order.

*Pay List Book E.*

The Pay-list Book E contains a nominal roll of the permanent employees, such as mechanics, engineman, labourers and keeper, with the amounts paid weekly to each and their signature acknowledging receipt.

*Order Book D.*

In this order book, as already explained, special orders for manufacturing or for repairing or altering machines are entered, with a serial number. Each of these orders forms a head of account, distinct, in the Ledger B.

*Miscellaneous.*

Other books are also kept, such as the Daily Work Book, already noticed; a Requisition Book; a Book of Attendance for piece work operatives; a Scrap Book for the daily issue of stores, and books usually kept for reference, viz., correspondence, &c.

I trust this report will furnish the information required.

Improvements in details, will suggest themselves as work proceeds, the progress now quite noticeable in products, indicates this plainly.

I have the honor to be, Sir,  
Your obedient servant,

Osc. PRÉVOST, Major,  
Superintendent.

## (A 1.)

RETURN of Work performed in accordance with authority received 8th  
February, 1882.

Date of Order.	No. of Order.	No. and Purpose of Machine.	Work done.	Amount of Material.	Amount of Wages.	Remarks.				
1882.										
Feb. 20...	Order 1...	M. 364 Punch and form base-discs.....	Duplicate punches and dies.	20 73	369 58					
do ...	do ...	367 Punch and form base-cups (outer).....								
do ..	do ...	368 Punch and form base-cups (inner).....								
do ...	do ...	369 Punch holes in cups....								
do ...	do ...	370 Punch and form cap chambers.....								
do ...	do ...	371 2 extending cap chambers.....								
do ...	do ...	373 Flanging cap chambers								
do ...	do ...	375 Punch and form percussion caps.....								
do ...	do ...	376 Extending percussion caps.....								
do ...	do ...	384 Anvil punching .....								
do ...	do ...	388 Wad pressing .....	Put in working order.	8 18	242 77					
do ...	do ...	395 Pressing parts together								
do ...	do ...	396 Riveting and piercing.								
do ...	do ...	426 Clay-plug forming .....								
April 4...	Order 2...	365 Counter sinking base-discs.....								
do ...	do ...	372 Trimming cap chambers.....								
do ...	do ...	377 Trimming percussion caps .....								
do ...	do ...	378 Filling in fulminate....								
do ...	do ...	380 Pressing machine for fulminate.....								
do ...	do ...	386 Cutting paper into strips .....								
do ...	do ...	387 Wad winding.....								
do ...	do ...	390 Cutting for case body								
do ...	do ...	391 Cutting into case pieces.....								
do ...	do ...	393 Coiling case body.....								
do ...	do ...	394 Crimping and fixing parts.....								
do ...	do ...	397 Filling cases with powder.....								
do ...	do ...	398 Choking cases.....								
do ...	do ...	399 Capping machine.....								
do ...	do ...	409 Vertical drilling machine.....								
do ...	do ...	413 Force pump .....								
do ...	do ...	414 Distribution valve.....								
do ...	do ...	418 Bullet compressing....								
do ...	do ...	419 Canneluring.....								
do ...	do ...	420 Warm and gauge bullets and press in clay plugs.....								
do ...	do ...	421 Steam pan for lubricating bullets.....								
do ...	do ...	529 Pug Mill.....								
Value of coal expended on above orders.....							\$28 91	\$612 35		
							\$284 98			

## (A. 2.)

## RETURN of Tools, &amp;c., for Work Shop.

		\$ cts.			\$ cts.
Screw auger.....	1	0 40	Brought forward.....		
Anvil and cutter.....	1		Handles, file.....	18	0 90
Bellows.....	1	0 05	do chisel.....	2	1 00
Chaisers.....	4 prs.	5 00	do lathe.....		Made in shop
Chucks, complete.....	2		Handspikes, 6 ft.....	4	Militia stores
do Whiton's pat. drill.....		9 75	Holders, drill, for lathe.....		Made in shop
Chisel, socket.....	1	0 35	Iron.....		26 89
do cold.....	2	Militia stores	Mandrills.....	16	Made in shop
Clamps, coupling.....	1 pr.		Solder.....	1 lb.	0 45
Cramps.....	2		Stones, oil.....	4	0 90
Drills, twist, varied sizes.....	59	51 10	Stamps, D. C.....	2 sets	4 00
do ratchet.....	1	7 00	Stays, complete.....	2	40 00
do twist.....	1 doz	2 00	Saws, egg-hand.....	1	2 00
do do.....	2	0 42	Turn-screws.....	6	2 45
Drip, for pulleys.....	1		do.....	1	Militia stores
do gun metal.....	3		Screws, assorted.....		7 56
Dies for chucks.....	3 prs.		Spanners.....	4	Militia stores
Drivers, wood and gun metal	2	} Militia stores	Squares, machinists'.....	2	27 00
do cooper do.....	1		Sash tools No. 5.....	2	0 24
Dogs.....	8		Steel centres, 54 lbs.....	2	1 62
Emery cloth.....	9½ yds	5 04	Tapers and plugs, taps.....	4	4 25
Emery wheels.....	144	24 96	Tongs.....	2 prs.	1 00
Files.....	4	Militia stores	Trowel, masons.....	1	0 75
do.....	17½ doz	71 17	Tools, shaping machines, }		37 00
Flange, union.....	1	0 35	Tool holders and drills..... }		
do metal, sample.....	6½ lbs.	2 93	Steady head for lathe.....	1	10 00
Forge, portable.....	1	30 00	Turn screws.....	2	0 60
Gimlets.....	2	0 40	Tools for lathes, }	16	} Made in shop
Gimlet or bit spike.....	1	Militia stores	do.....	18	
Gauge socket.....	1	0 45	Vices.....	3 prs.	18 00
Holding down plates.....	4	3 00	do smiths'.....	1	4 50
Hammers, steel.....	4	5 00	do benches.....	3	6 00
do hand.....	1	Militia stores	do hand.....	2	1 00
do machinists'.....	2	1 65	do blacksmiths'.....	1	7 36
do smith.....	1	0 60	Wrench, screw, 12 in.....	2	2 40
Carried forward.....			Total.....		430 09

(B.)

## RETURN OF ALTERATIONS TO MACHINERY.

Date of Order.	No. of Order.	Number and Purpose of Machine.	Specification of Work done.	Amount of Material		Amount of Wages.		Remarks.
				\$	cts.	\$	cts.	
1882.								
Aug. 4...	Order 4...	M. 418 <sup>1</sup> Bullet compressing.....	Putting 24 steel bushes in holes of cutting plate.....	0	95	17	50	The holes in cutting plate as received, unsuitable.
do 19...	do 5...	.....	Pulley to bore and turn for pug-mill, pump for press; two capping machines; one clay-grinding; shafting ground floor, main building; put pins in couplings and shifters of, altered.....	0	48	19	00	
Sept. 4...	do 6...	.....	Base-disc gauge and anvil strip stand...	2	12	18	00	These had to be done to hasten fitting in machinery. Carrier & Lainé had the contract for this work; failed to do it in time; value struck off their account. The coupling provided could not resist strain of hydraulic press.
Oct 18...	do 10...	M. 369 Punching and fixing base-cups.....	New punch, new holder and alteration of bottom punch.....	0	61	13	46	The punch and dies supplied with machinery were of too soft steel; only "Vickers" steel will last.
do 18...	do 12...	364 Punching and forming base-discs.....	New punch and alteration to sliding cross-pieces.....	0	15	4	51	To remedy faulty construction.
Nov. 2...	do 15...	do do	1 new striker; 1 new hollow punch.....	2	70	43	14	
do 25...	do 18...	395 Countersinking base-discs...	New spindles to feed-plates.....	0	85	26	40	
Jan. 12...	do 22...	395 Pressing component parts together.....	20 new punches and dies.....	1	50	85	77	do
do 22...	do 23...	388 Wad-pressing machine.....	New dies and alteration of punches.....	0	30	13	05	do
Feb. 16...	do 25...	364 Punching and forming base-discs.....	New punches.....	.....	.....	3	43	do
do 23...	do 27...	418 <sup>2</sup> Bullet compressing.....	New punches and dies and alterations..	.....	.....	107	70	do
do 28...	do 28...	395 Pressing component parts together.....	Repairing machine.....	.....	.....	8	91	Caused by faulty construction.
March 21...	do 30...	419 Cannelluring machine.....	do	.....	.....	17	01	

## (B.)—RETURN OF ALTERATIONS TO MACHINERY—Continued.

Date of Order.	No. of Order.	Number and Purpose of Machine	Specification of Work done.	Amount of Material.	\$ cts.	Amount of Wages.	\$ cts.	Remarks.
1883.								
May 4...	Order 35...	365 Countersinking base-discs...	Repairing and making new cam for spindle of drill.....		0 97	22 79		To remedy faulty construction.
do 31...	do 41...	395 Pressing component parts together.....	10 new bell-mouthed dies for service cases.....		2 98	80 45		do
June 5...	do 42...	418 Bullet compressing.....	1 new guide-plate; 24 new bushes for cutting off plate.....		3 00	46 20		do
May 17...	do 49...	.....	Changing 2 slides of 2 rifle-rests and fitting same on slide-guides.....		.....	5 50		do
July 5...	do 53...	M. 365 Countersinking base-discs...	Repairing machine.....		.....	13 30		do
Aug. 17...	do 60...	426 Clay-plug machine....	New lever (unfinished, still in progress)		0 35	4 40		This was broken through faulty action of the machine.
do 25...	do 63...	419 Canneluring machine.....	Alteration of disc and segment.....		.....	10 35		To suit the form of bullet presently made.
do 29...	do 66...	395 Pressing component parts...	New pawl and altering cam.....		.....	7 40		To remedy faulty construction.
Sept. 12...	do 70...	398 Choking cases machine.....	Re-facing disc and segment (unfinished, still in progress) .....		.....	6 30		To suit the form of bullet presently made.
				18 09		574 57		

(C.)  
RETURN OF MACHINERY PROVIDED FOR BLANK AMMUNITION.

Date of Order.	No of Order.	Number and Purpose of Machine.	Specification of Work done.	Amount of Material	Amount of Wages.	Remarks.
1883.				\$ cts.	\$ cts.	
May 21...	Order 36.	M. 394 Rolling and crimping blank	4 Machines converted.....	0 16	21 91	
do 26...	do 38.	395 Pressing parts together.....	10 new bell-mouthed dies (blank cases.	0 75	18 82	
do 26...	do 39.	394 Rolling and Crimping blank	1 machine converted.....	0 46	8 22	
do 30...	do 40.	369 Base-cup piercing.....	2 new punches (1 for blank and 1 for service.....	0 22	5 15	
June 30...	do 48.	388 Pellet pressing.....	New die for blank pellets and altering both punches for same.....	0 30	9 42	
				1 89	63 52	

[D.]

## RAW Material (Special) Received.

		\$	cts.
Fulminate of mercury .....	25 lbs.	47	85
Paper, brown, 90lbs.....	40 reams.	364	13
do 42 ".....	25 "	125	32
do 45 ".....	90 "	309	88
White tissue .....	22 "	17	40
Whited brown .....	9 "	8	40
Shellac (orange) .....	728 lbs.	177	94
Brass strips—Outer cup.....	7,047 "	1,057	05
do Inner cup.....	3,820 "	592	05
do Case body .....	10,710 "	1,686	83
do Anvils .....	1,568 "	235	20
do Cap chambers .....	7,963 "	1,194	45
Copper strips—Percussion caps .....	1,561 "	265	37
Iron strips .....	16,426 "	535	38
Glue .....	330 "	32	71
Oil—Linseed.....	34 galls.	23	56
Neatsfoot .....	5 "	3	65
Olive .....	30 "	24	33
Chlorate of potash.....	30 lbs.	6	09
Stockholm tar.....	75 galls.	13	87
Bees wax—Canadian .....	400 lbs.	127	50
do English .....	112 "	32	24
Spirits of wine .....	117 galls.	113	36
Sulphate of antimony .....	17½ lbs.	1	95
Seedlac .....	112 "	43	12
Turmeric .....	112 "	6	82
Lead, pig.....	89,700 "	2,804	55
Coal.....	278 "	1,474	46
Coke.....	13 chaldrons	82	00
Powder—English .....	2,600 lbs.	572	00
do Canadian .....	8,240 "	1,812	80
Oil, machinery.....	120 galls.	82	05
		13,874	31

## [E 1.]

## RAW Material (Special) Expended.

		\$	ct
Fulminate of mercury .....			
Paper—Brown, 90lbs.....	19 reams.	169	88
do 45 ".....	33 "	65	98
do 42 ".....	12 "	58	89
do White tissue.....	5 "	3	93
do White brown.....	1 "	0	93
Shellac (orange).....	210 lbs.	51	03
Brass strips—Outer cup.....	3,412 "	511	80
do Inner cup.....	2,021 "	313	21
do Case body.....	5,098 "	802	94
do Anvils.....	605 "	90	75
do Cap chambers.....	3,818 "	572	70
Copper strips—Percussion caps .....	813 "	138	21
Iron strips—Base discs.....	6,027 "	198	02
Glue .....			
Oil—Linseed.....	17½ galls.	11	18
Neatsfoot .....	1 "	0	73
Olive.....	2 "	1	63
Chlorate of potash.....			
Stockholm tar.....	1 gall.	0	19
Bees wax—Canadian .....	124 lbs.	38	10
do English.....	112 "	32	24
Spirits of wine.....	36½ "	28	83
Sulphate of antimony.....			
Seedlac.....	112 lbs.	43	12
Turmeric.....	½ "	0	04
Lead, pig.....	5,285 "	179	30
Coal.....	225 tons.	1,222	71
Coke.....	10½ chaldrons	64	50
Powder—English.....	1,450 lbs.	319	00
do Canadian.....	1,580 "	347	00
Oil, machinery.....	105 galls.	72	67
LESS :—Copper scrap, 357lbs.....	\$ 53	55	
Brass do 2,941 ".....	294	10	
Iron do 700 ".....	10	50	
			358 15
			4,981 96

## (E 2.)

## STOCK on hand.

		\$ cts		\$ cts.
Brass strips, outer cup ....	3,635 lbs.	545 25	Brought forward....	6,421 04
do inner do .....	1,799 "	278 84	Paper, tissue.....	17 Rs. 13 47
do case-body ....	5,612 "	883 89	do N. B. Manilla,	34 " 29 58
do anvils.....	963 "	144 45	Reid's.....	1,150 lbs. 253 00
do cap-chambers	4,145 "	621 75	Powder, English.....	6,660 " 1,465 20
Brushes, cement, large ....	6		do Canadian.....	40 galls. 11 20
do do .....	5 doz.	12 50	do linseed.....	16½ " 12 38
Copper, percussion caps..	748 lbs.	127 16	do machinery.....	15 " 9 38
Cotton waste .....	224 "	18 48	Oil stones .....	2 0 60
do wool .....	90 "	18 00	Oil, Neatsfoot .....	4 galls. 2 92
Coal, laboratory.....	23 tons.	109 25	do olive .....	28 " 22 70
do factory.....	30 "	142 50	Shellac, orange.....	518 lbs 126 91
Coke.....	2½ chald.	17 50	Steel, machinery .....	7 " 0 35
Drills, twist.....	49		do Sanders .....	63½ " 9 52
Dusters.....	4	0 80	do Vickars .....	480 " 144 00
Emery cloth.....	12	0 30	do drawn .....	13 " 3 95
Files, varied .....	80	32 40	Scraps, copper.....	357 " 53 55
Handles, file.....	7	0 35	do brass .....	2,941 " 294 10
do lathe.....	12		do iron .....	700 " 10 50
Iron, base-discs.....	10,399 lbs.	337 36	Seedlac .....	112 " 43 12
do flat .....	10½ "	0 30	Turpentine .....	¾ gall. 0 75
Laps, copper .....	2		Tar, Stockholm.....	74 galls. 13 68
Lead, black.....	¼ lb.	0 13	Turmeric .....	111½ lbs. 6 78
do pig.....	84,415 lbs.	2,625 25	Wax, Canadian, No. 1....	132 " 46 20
Laps, lead.....	3		do do No 2.....	144 " 43 20
Mops.....	6		Wine, meth. spirits of....	80½ galls. 84 53
Mercury, fulminate of .....			Whitening .....	272 lbs. 4 77
Paper, 90 lbs.....	21 Rs.	194 25	Clay, Newcastle .....	1 bag. 2 50
do 45 lbs.....	66 Rs., 380	243 90	Paper, white brown.....	8 7 47
do 42 lbs. ....	sheets.			
	13 Rs.	66 43		
Carried forward.....		6,421 04		9,137 35

## (F 1.)

## LIST of Salaried Employés

Names.	Rate per Day.
	\$ cts.
William Dixon.....	3 51½
F. E. Knight.....	1 50
Arthur J. Duchesnay.....	1 00
Charles Robitaille.....	2 50
Thomas Lane.....	2 00
Anson G. Ronan.....	2 00
François Hallée.....	2 00
G. Goudie.....	1 00
O. Bolduc.....	1 00
G. Grenier.....	1 00
J. B. Lefebvre.....	1 00
Matté Boucher.....	1 00

## (F 2.)

## LIST of Employés on Piece Work.

		Rate per Day.
		\$ cts.
1	Charles Roy .....	1 08 $\frac{1}{2}$
2	William Joyce .....	1 00
3	Thos. Douglass .....	0 30
4	Joseph Robichaud .....	0 30
5	Eugenie Genest .....	0 30
6	Délina Genest .....	0 30
7	Délina Tessier .....	0 30
8	Marie Lepine .....	0 25
9	Olive Lepine .....	0 20
10	Sophie Fiset .....	0 21 $\frac{1}{2}$
11	Emelie Roussel .....	0 25
12	Théophile Rochette .....	0 15
13	Sarah Martel .....	0 20
14	Rose Fiset .....	0 15
15	Louis Robichaud .....	0 15
16	Alex. Wright .....	0 20
17	Josephine Lavallée .....	0 20
18	Clara L'Heureux .....	0 20
19	Zelia Gagné .....	0 20
20	Victor Fiset .....	0 15
21	Isidore Giroux .....	0 15
22	Alphonse Pelletier .....	0 15
23	Leda Pouliot .....	0 20
24	Delina McCarthy .....	0 20
25	Marie Baker .....	0 20

**G.**  
**NOMINAL LIST.**

Names.	Employment.	Where Born.	Remarks.
William Dixon.....	Foreman.....	England.....	
F. E. Knight.....	Clerk.....	Canada.....	
Arthur J. Duchesnay .....	do .....	do .....	
Charles Robitaille.....	Mechanic.....	do .....	
Thomas Lane.....	do .....	do .....	
Anson G. Ronan.....	do .....	do .....	
François Wallée.....	do .....	do .....	
G. Goudie.....	do .....	do .....	
Ovide Bolduc.....	Engine man.....	do .....	
Gabriel Grenier.....	Labourer.....	do .....	
J. Bte. Lefebvre.....	Caretaker.....	do .....	
Charles Roy.....	Overlooker.....	do .....	
William Joyce.....	Examiner.....	do .....	
Thomas Douglas.....	Cartridge machinery.....	do .....	
Jos. Robichaud.....	do .....	do .....	
Eugenie Genest.....	do .....	do .....	
Delima Genest.....	do .....	do .....	
Delima Tessier.....	do .....	do .....	
Marie Lepine.....	do .....	do .....	
Olive Lepine.....	do .....	do .....	
Sophie Fiset.....	do .....	do .....	
Emelie Roussel.....	do .....	do .....	
Théophile Rochette.....	do .....	do .....	
Sarah Martel.....	do .....	do .....	
Rose Fiset.....	do .....	do .....	
Louis Robichaud.....	do .....	do .....	
Alex. Wright.....	do .....	do .....	
Josephine Lavallée.....	do .....	do .....	
Clara L'Heureux.....	do .....	do .....	
Zelia Gagné.....	do .....	do .....	
Victor Fiset.....	do .....	do .....	
Isidore Giroux.....	do .....	do .....	
Alphonse Pelletier.....	do .....	do .....	
Leda Pouliot.....	do .....	do .....	
Delima McCarthy.....	do .....	do .....	
Marie Baker.....	do .....	do .....	
Matté Boucher.....	Labourer.....	do .....	

(H)

## PRICES for Piece Work on S. A. Ammunition.

17th September, 1883.

Operations.	Per 1,000.	Operations.	Per 1,000.
<i>Forming Empty.</i>	\$ cts.	<i>Anvils.</i>	\$ cts.
Cutting paper.....	0 01 <sup>2</sup> / <sub>10</sub>	Punching.....	0 00 <sup>2</sup> / <sub>10</sub>
do brass into lengths.....	0 01	Cleaning.....	0 00 <sup>2</sup> / <sub>10</sub>
do do widths.....	0 01	Examining.....	0 00 <sup>2</sup> / <sub>10</sub>
Fixing tissue paper on brass.....	0 06	Percentage.....	0 00 <sup>2</sup> / <sub>10</sub>
do brown paper.....	0 08		
Cutting case-pieces.....	0 01	<i>Base-Discs.</i>	
Cementing.....	0 10	Punching.....	0 02
Fixing and punching base-cups.....	0 03	Cleaning.....	0 00 <sup>2</sup> / <sub>10</sub>
Preparing discs and chambers.....	0 02 <sup>4</sup> / <sub>10</sub>	Countersinking.....	0 03
Punching holes in base-cups.....	0 10	Examining.....	0 02 <sup>4</sup> / <sub>10</sub>
Rolling cases.....	0 04	Coating with oil.....	0 02 <sup>4</sup> / <sub>10</sub>
do and fixing cases.....	0 24	Separating.....	0 00 <sup>2</sup> / <sub>10</sub>
Examining cases.....	0 03	Overlooking.....	0 00 <sup>2</sup> / <sub>10</sub>
Pelleting and fixing cases.....	0 05 <sup>5</sup> / <sub>10</sub>	Percentage.....	0 00 <sup>2</sup> / <sub>10</sub>
Riveting and piercing cap-chambers.....	0 08 <sup>1</sup> / <sub>10</sub>		
Inserting paper linings.....	0 30	<i>Base-Cups (Inside.)</i>	
Cutting down cases for blank.....	0 05	Forming.....	1 01 <sup>5</sup> / <sub>10</sub>
Rolling, pelleting and crimping blank.....	0 01 <sup>6</sup> / <sub>10</sub>	Cleaning and annealing.....	0 00 <sup>2</sup> / <sub>10</sub>
Pressing cases (parts together).....	0 08 <sup>1</sup> / <sub>10</sub>	Examining.....	0 05
Overlooking.....		Percentage.....	0 00 <sup>2</sup> / <sub>10</sub>
Percentage.....		Cutting strips.....	0 00 <sup>2</sup> / <sub>10</sub>
<i>Filling and Finishing.</i>			
Final examination.....	0 05	<i>Base-Cups (Outside.)</i>	
Cutting paper.....	0 00 <sup>6</sup> / <sub>10</sub>	Forming.....	0 01 <sup>2</sup> / <sub>10</sub>
Placing bullets in trays.....	0 02	Cleaning.....	0 00 <sup>2</sup> / <sub>10</sub>
Hot gauging and cleaning bullets.....	0 10 <sup>2</sup> / <sub>10</sub>	Examining.....	0 05
Filling cases with powder.....	0 03	Percentage.....	0 00 <sup>2</sup> / <sub>10</sub>
Inserting wool and bullet.....	0 17		
Dipping in wax.....	0 02	<i>Cap-Chambers.</i>	
Choking cartridges.....	0 02 <sup>4</sup> / <sub>10</sub>	Forming { 1st Process.....	0 00 <sup>7</sup> / <sub>10</sub>
Turning in tops of paper linings.....	0 04	2nd do.....	0 03
Pressing down the same.....	0 04	3rd do.....	0 03
Crimping top of cases.....	0 09	Trimming.....	0 03
Plating caps and anvils.....	0 02 <sup>5</sup> / <sub>10</sub>	Flanging.....	0 03
Capping.....	0 07 <sup>2</sup> / <sub>10</sub>	Overlooking.....	0 01 <sup>2</sup> / <sub>10</sub>
Chamber gauging.....	0 03 <sup>6</sup> / <sub>10</sub>	Cutting "strips".....	0 00 <sup>2</sup> / <sub>10</sub>
Packing in bundles.....	0 10	Examining.....	0 01 <sup>2</sup> / <sub>10</sub>
Length gauging.....	0 03 <sup>6</sup> / <sub>10</sub>	Annealing and cleaning.....	0 00 <sup>2</sup> / <sub>10</sub>
Packing in packages, weighing.....	0 4 <sup>2</sup> / <sub>10</sub>	Lacquering.....	0 00 <sup>2</sup> / <sub>10</sub>
Labelling and stencilling.....	0 14 <sup>4</sup> / <sub>10</sub>	Percentage.....	0 01
Percentage.....			
<i>Pellets.</i>		<i>Percussion-Caps (Empty.)</i>	
Cutting paper into strips.....	0 01 <sup>3</sup> / <sub>10</sub>	Forming.....	0 00 <sup>7</sup> / <sub>10</sub>
Pasting strips.....	0 01	Extending.....	0 03
Carrying strips to winders and removing work.....	0 00 <sup>8</sup> / <sub>10</sub>	Trimming.....	0 02
Winding.....	0 08	Overlooking.....	0 01
Pressing.....	0 02 <sup>5</sup> / <sub>10</sub>	Examining.....	0 01 <sup>2</sup> / <sub>10</sub>
Overlooking.....	0 01 <sup>4</sup> / <sub>10</sub>	Cleaning and annealing.....	0 00 <sup>2</sup> / <sub>10</sub>
Percentage.....	0 01 <sup>2</sup> / <sub>10</sub>	Cutting strips.....	0 00 <sup>2</sup> / <sub>10</sub>
		Percentage.....	0 00 <sup>2</sup> / <sub>10</sub>

## (H.)

PRICES of Piece Work on S. H. Ammunition—*Continued.*

Operations.	Per 1,000.	Operations.	Per 1,000.
<i>Percussion-Caps (Filling.)</i>	\$ cts.	<i>Bullets.</i>	\$ cts.
Mixing composition.....	0 03	Squirting rod-lead.....	0 01 <sup>1</sup> / <sub>16</sub>
Conveying composition from fulminate buildings.....	0 00 <sup>7</sup> / <sub>10</sub>	Winding rod lead on machine.....	0 01
Filling.....	0 00 <sup>9</sup> / <sub>10</sub>	Making { 1st Operation.....	0 01
Pressing and finishing, &c.....	0 04 <sup>2</sup> / <sub>10</sub>	{ 2nd do.....	0 02
Overlooking.....	0 01	Sorting blanks (old machine).....	0 01
		Canneluring.....	0 01
		Rectifying, &c.....	0 04
<i>Clay-Plugs</i>		Sorting and packing.....	0 01
Making complete.....	0 00 <sup>8</sup> / <sub>10</sub>	Work-taker and sweeping.....	0 01 <sup>2</sup> / <sub>16</sub>
Grinding clay.....	0 03	Overlooking.....	0 01 <sup>2</sup> / <sub>16</sub>
Forming plugs.....	0 00 <sup>8</sup> / <sub>10</sub>	Mechanics, repairing machines, dies, punches, &c.....	0 05 <sup>1</sup> / <sub>16</sub>
Baking plugs.....	0 00 <sup>7</sup> / <sub>10</sub>	Pressing in clay-plugs.....	0 06
Gauging and waxing.....	0 00 <sup>3</sup> / <sub>10</sub>		
Percentage.....	0 00 <sup>3</sup> / <sub>10</sub>		

## (J.)

## RETURN of Ammunition Manufactured up to Date.

	Ball.	Blank.	Percussion Caps.
Issued Storekeeper as per his receipts.....	69,720	128,900	
Remaining on hand (filled).....	6,000	17,000	
do do.....			4,000
Total.....	75,720	145,900	4,000
Ready for filling.....	150,200		
Partly finished.....	132,000		
Total.....	282,000		

Proceedings of a Board of Survey assembled at the Militia Office, Quebec, by order of the Hon. the Minister of Militia and Defence, dated at Ottawa on the 6th of October, 1883, for the purpose of testing without delay and reporting fully on the cartridges manufactured at the Government Cartridge Factory, at Quebec, under the superintendence of Major Prévost:

**President:**

Lieut.-Col. T. J. Duchesnay, D.A.G., 7th Military District.

**Members:**

Lieut.-Col. E. B. Beer, 74th Batt.

Lieut.-Col. E. G. Scott, 8th R.R.

Major C. J. Short, B.B., R.S.C.

Capt. H. F. Perley, H.Q. Staff.

Capt. G. H. Balfour, 8th R.R.

Capt. E. A. Macnachtan, C.G.A.

The Board, pursuant to order assembled on the 8th, 9th, 10th and 11th of October, 1883, and proceeded to carry out the orders conveyed in the letter of the 6th of October, inst.:—

1st. By a minute inspection of the manufacture of the cartridges in the Dominion Factory, in detail.

2nd. By testing 90 rounds of the above ammunition at 500 yards, from a Whitworth fixed rest.

Diagrams of these practices are annexed to the proceedings.

3rd. By testing at the same time, for comparison, 20 rounds each of 1877 and 1882, No. 9 ammunition, manufactured at Woolwich.

Diagrams of these practices are also annexed.

4th. By testing in individual shooting at the Lévis Rifle Range, with a squad of 16 men at 200, 500 and 600 yards, 144 rounds at each range, of the Dominion ammunition.

*Opinion.*

The Board are of unanimous opinion—

1st. That the process of manufacture of the Dominion cartridges is perfectly satisfactory, the greatest care being taken in overlooking and testing the component parts of each cartridge, by which the slightest defect or blemish must be discovered; that the powder used is the R.F.G., Waltham Abbey, such as is used at Woolwich in the manufacture of Snider Ball Cartridges.

2nd. That the tests from the Whitworth fixed rests, of the Dominion Ammunition, were quite satisfactory, the result as shown on the annexed diagrams being that the variation was much within the limit of the Woolwich test.

3rd. The Dominion Ammunition gave a better result than the English No. 9 of the years 1877 and 1882, from a fixed rest at 500 yards—as shown on the accompanying diagrams.

4th. The result of the individual shooting on the Lévis Range, at 200, 500 and 600 yards, by the squad of sixteen men from "A" Battery C.A., and the 8th Royal Rifles, satisfied the Board of the uniform strength and quality of the Dominion Ammunition. Therefore, the Board have no hesitation in recommending the Dominion Ammunition for issue and general use in Canada.

The Board, in conclusion, have much pleasure in testifying to the superior qualifications of the Superintendent of the Dominion Cartridge Factory, Major Prévost, who afforded them every facility in furthering their investigations.

Signed at Quebec, this 11th day of October, 1883.

T. J. DUCHESNAY, Lt. Col.,

D.A.G., M.D. No. 7, President Board of Survey.

Edwin B. Beer, Lieut.-Col., Commanding 74th Battalion.

E. G. Scott, Lieut.-Col., Commanding 8th R.R.

Charles J. Short, Major, "B" Battery, R.S.C.

H. F. Perley, Capt., H.Q. Staff.

G. H. Balfour, Capt., 8th R.R.

E. A. Macnachtan, Lieut., C.G.A.



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# CANADA.

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## ANNUAL REPORT

OF THE

# MINISTER OF PUBLIC WORKS

FOR THE

FISCAL YEAR 1882-83

ON THE WORKS UNDER HIS CONTROL.

---

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT THIRD-FIRST  
VICTORIA, CHAPTER TWELVE, SECTION NINETEEN, AS AMENDED BY  
THE ACT FORTY-SECOND VICTORIA, CHAPTER SEVEN.

---

*PRINTED BY ORDER OF PARLIAMENT.*

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OTTAWA:

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.

1883.



## TABLE OF CONTENTS.

	PAGE.
INTRODUCTION .....	xvii
GENERAL EXPENDITURE.....	xvii
PUBLIC BUILDINGS.....	xviii
PROVINCE OF NOVA SCOTIA :—	
AMHERST—Public Building.....	xix
ANTIGONISH     do .....	xix
HALIFAX—Dominion Building.....	xix
Penitentiary .....	xix
Quarantine Station .....	xix
NEW GLASGOW—Public Building.....	xix
NORTH SYDNEY     do .....	xx
PICTOU—Marine Hospital.....	xx
SYDNEY—Inland Revenue Office.....	xx
Quarantine Station.....	xx
TRURO—Public Building.....	xxi
WINDSOR     do .....	xxi
PROVINCE OF PRINCE EDWARD ISLAND :—	
CHARLOTTETOWN—Dominion Building.....	xxi
Marine Hospital.....	xxi
Military Buildings.....	xxi
SOURIS—Marine Hospital.....	xxii
SUMMERSIDE—Public Building.....	xxii
PROVINCE OF NEW BRUNSWICK :—	
CARLETON—Post Office.....	xxii
CHATHAM—Public Building.....	xxii
DORCHESTER—Penitentiary.....	xxiii
FREDERICTON—Post Office, &c.....	xxiii
MONCTON—Public Building.....	xxiii
NEWCASTLE—Post Office.....	xxiii

	PAGE.
<b>PROVINCE OF NEW BRUNSWICK—<i>Concluded.</i></b>	
ST. JOHN—Cattle Quarantine.....	xxiii
Custom House.....	xxiv
Fort Dufferin.....	xxiv
Marine Hospital.....	xxiv
Military Buildings.....	xxiv
Penitentiary .....	xxiv
Post Office.....	xxiv
Savings Bank.....	xxiv
ST. STEPHENS—Public Building.....	xxiv
SUSSEX do .....	xxv
WOODSTOCK do .....	xxv
<b>PROVINCE OF QUEBEC :—</b>	
BURY—Drill Shed.....	xxv
CHAMBLY—Fort.....	xxv
CHICOUTIMI—Marine Hospital.....	xxvi
GROSSE ISLE—Quarantine Station.....	xxvi
HULL—Public Building.....	xxvi
LÉVIS—Fortifications .....	xxvi
Immigrant Building....	xxvi
MONTREAL—Custom House.....	xxvii
Drill Hall.....	xxvii
Examining Warehouse.....	xxvii
Immigrant Building .....	xxvii
Inland Revenue Offices.....	xxvii
Museum .....	xxvii
Post Office.....	xxvii
QUEBEC—Artillery Barracks .....	xxviii
Cartridge Factory.....	xxviii
Citadel .....	xxviii
Citadel Cliff .....	xxviii
Cullers' Office .....	xxviii
Custom House.....	xxviii
Dufferin Terrace .....	xxviii
Examining Warehouse.....	xxviii
Fortifications. ....	xxix
Gas Inspector's Office.....	xxix
Military Building.....	xxix
Post Office.....	xxix
SHEBBROOK—Drill Shed .....	xxix
Public Building.....	xxix

	PAGE.
PROVINCE OF QUEBEC— <i>Concluded.</i>	
ST. HELEN'S ISLAND—Military Buildings.....	xxx
ST. JOHN'S—Post Office.....	xxx
ST. REGIS—Custom House.....	xxx
ST. VINCENT DE PAUL—Penitentiary.....	xxx
THREE RIVERS—Custom House &c.....	xxx
Post Office.....	xxxi
PROVINCE OF ONTARIO:—	
AMHERSTBURG—Public Building.....	xxxi
BARRIE do .....	xxxi
BRANTFORD do .....	xxxi
BELLEVILLE do .....	xxxi
BERLIN do .....	xxxii
BOWMANVILLE—Drill Shed.....	xxxii
BROCKVILLE—Public Building.....	xxxii
CHATHAM do .....	xxxiii
CLIFTON do .....	xxxiii
COBOURG do .....	xxxiv
CORNWALL do .....	xxxiv
GALT do .....	xxxiv
GANANOQUI—Custom House .....	xxxi
GUELPH do .....	xxxv
HAMILTON—Immigrant Shed.....	xxxv
Public Building.....	xxxv
KINGSTON—Custom House.....	xxxvi
Fortifications .....	xxxvi
Inland Revenue Office.....	xxxvi
Penitentiary .....	xxxvi
Post Office.....	xxxvi
Royal Military College.....	xxxvi
LONDON—Custom House.....	xxxvi
Military Buildings .....	xxxvi
Post Office .....	xxxvii
NIAGARA—Barracks .....	xxxvii
OTTAWA—Departmental Building, Wellington Street.....	xxxvii
Drill Shed.....	xxxvii

PROVINCE OF ONTARIO—*Concluded.*

PAGE

OTTAWA—Geological Museum.....	xxxvii
Nepean Point .....	xxxvii
Post Office.....	xxxviii
Public Buildings .....	xxxviii
Rideau Hall.....	xxxviii
Statue of late Sir G. E. Cartier.....	xxxviii
Supreme Court... ..	xxxix
PORT HOPE—Public Building .....	xxxix
PRESCOTT—Fort Wellington Barracks.....	xxxix
Inland Revenue Office.....	xxxix
SARNIA—Cattle Quarantine.....	xxxix
Immigrant Shed Building.....	xl
STRATFORD—Public Building.....	xl
ST. CATHARINES do .....	xl
ST. THOMAS—Drill Shed.....	xl
Public Building.....	xli
TORONTO — Assistant Receiver General's Office.....	xli
Custom House.....	xli
Drill Shed .....	xli
Examining Warehouse.....	xli
Immigrant Building .....	xli
Inland Revenue Office .....	xli
Military Buildings .....	xli
Post Office.....	xli
WINDSOR— do .....	xlii

## DISPUTED TERRITORY :—

PORT ARTHUR—Immigrant Building.....	xlii
RAT PORTAGE—Jail.....	xlii

## PROVINCE OF MANITOBA :—

BRANDON—Immigrant Building.....	xlii
EMERSON do .....	xlii
QU'APPELLE do .....	xlii
STONY MOUNTAIN—Penitentiary.....	xliii
WINNIPEG—Architect's Office.....	xliii
Assistant Receiver-General's Office.....	xliii
Custom House.....	xliii
Dominion Lands Office .....	xliii
Fort Osborne Barracks.....	xliii
Immigrant Building .....	xliv
Lieut. Governor's Residence.....	xliv

PROVINCE OF MANITOBA—*Concluded.*

PAGE:

WINNIPEG—Parliament Buildings.....	xliv
Post Office (old).....	xliv
do (new).....	xliv

## NORTH-WEST TERRITORIES:—

PUBLIC BUILDINGS GENERALLY.....	xliv
REGINA—Public Buildings .....	xliv

## PROVINCE OF BRITISH COLUMBIA:—

NANAIMO—Public Building.....	xliv
NEW WESTMINSTER—Penitentiary.....	xliv
Post Office.....	xlvi
Public Building.....	xlvi
VICTORIA—Military Works.....	xlvi
Post Office .....	xlvi
Quarantine Station.....	xlvi

CIVIL SERVICE EXAMINATIONS.....	xlvi
---------------------------------	------

HEATING DOMINION BUILDINGS .....	xlvi
----------------------------------	------

SALARIES OF ENGINEERS, FIREMEN, &c.....	xlvi
---	------

HARBOURS AND RIVERS.....	xlvi
--------------------------	------

## PROVINCE OF NOVA SCOTIA:—

Annapolis.....	xlvi
Arisaig.....	xlvi
Bear River.....	xlvi
Benacadie Pond.....	xlvi
Brooklyn.....	xlvi
Cape St. Mary.....	xlvi
Cheverie .....	xlix
Coffin Island.....	xlix
Cow Bay .....	xlix
Digby.....	xlix
Eagle Head.....	xlix
East Bay.....	xlix
Great River Village.....	xlix
Hampton.....	l
Indian Harbour.....	l
Jordan Bay .....	l
Liverpool.....	l
Mabou.....	l
Main-à-Dieu .....	l
Meteghan Cove .....	l
Meteghan River.. ..	l
New Harbour.....	li
North Sydney.....	li

HARBORS AND RIVERS—*Continued.*PRONINCE OF NOVA SCOTIA—*Concluded.*

Parker's Cove.....	li
Parrsboro' Pier.....	li
Parrsboro' or Partridge Island River.....	li
Petit Rivière.....	li
Pickett's Pier.....	li
Pictou Island.....	li
Port Hood.....	lii
Port Lorne.....	lii
Ragged Pond.....	ii
Saw Pit.....	lii
Silver Point.....	lii
South Ingonish.....	lii
St. Mary's River.....	lii
Summerville.....	lii
Trout Cove.....	liii
Westport.....	liii
White Point.....	liii
Yarmouth.....	liii

## PROVINCE OF PRINCE EDWARD ISLAND:—

Campbell's Cove.....	liii
Cascumpec.....	liii
Colville Bay (Souris East).....	liii
Malpeque.....	liv
Miminegash.....	liv
Rustico Harbour.....	liv
South River (Murray Harbour).....	liv
South West River (New London).....	liv
St. Peters' Bay.....	liv
Tignish.....	liv
Wood Island.....	liv

## PROVINCE OF NEW BRUNSWICK:—

Campo Bello.....	lv
Caraquette.....	lv
Cocagne.....	lv
Courteney Bay.....	lv
Madawaska River.....	lv
Miramichi.....	lv
Point du Chêne (Shediac).....	lvi
Quaco.....	lvi
Richibucto.....	lvi
Rocher Bay.....	lvi
Shippagan.....	lv <sub>i</sub>
St. Andrews.....	lv <sub>i</sub>
St. John.....	lv <sub>i</sub>
St. John River.....	lv <sub>i</sub>
Tobique.....	lvi
Tynemouth.....	lv <sub>i</sub>

MARITIME PROVINCES GENERALLY.....	lvii
-----------------------------------	------

HARBORS AND RIVERS—*Continued.*

PAGE.

## PROVINCE OF QUEBEC:

Anse du Portage .....	lvii
Anse St. Jean .....	lvii
Bagotville.....	lvii
Baie St. Paul.....	lviii
Cap a l'Aigle .....	lviii
Carleton .....	lviii
Cedars .....	lviii
Chenal du Moine.....	lviii
Chicoutimi .....	lviii
Etang du Nord .....	lix
Grosse Ile.....	lix
Harbours Generally.....	lix
Ile aux Coudres .....	lix
Ile aux Grues.....	lix
Les Ecureuils.....	lix
Les Eboulements .....	lix
L'Islet.....	lix
Malbaie.....	lx
Matane.....	lx
Montreal .....	lx
New Carlisle .....	lx
Piopolis.....	lx
Port au Saumon.....	lx
Phillipsburg.....	lx
Quebec.....	lxi
Rivière Blanche.....	lxi
do du Lièvre.....	lxi
do du Loup ( <i>en bas</i> ).....	lxi
do Nicolet .....	lxi
do Ouelle .....	lxi
River Ottawa.....	lxi
do Richelieu.....	lxi
do Saguenay .....	lxi
do St. David.....	lxii
do St. Francis.....	lxii
do St. Lawrence.....	lxii
do Yamaska.....	lxii
Ste. Agnes.....	lxiii
St. François.....	lxiii
St. Jean Port Joli.....	lxiii
St. Michel.....	lxiii
St. Thomas de Montmagny.....	lxiii
St. Timothée.....	lxiii
St. Zotique.....	lxiii
Tadoussac.....	lxiv
Three Rivers... ..	lxiv
Trois Pistoles.....	lxiv
Yamachiche .....	lxiv

## PROVINCE OF ONTARIO :—

Cobourg.....	lxiv
Collingwood .....	lxiv

**HARBORS AND RIVERS—Continued.****PROVINCE OF ONTARIO—Concluded.**

Consecon .....	lxv
Goderich .....	lxv
Harbours and Rivers Generally .....	lxv
Kincardine .....	lxv
Kingston .....	lxv
Kingsville .....	lxv
Little Current .....	lxvi
Little Nation River .....	lxvi
Meaford .....	lxvi
Napanee River .....	lxvi
Newcastle .....	lxvi
Ottawa River .....	lxvi
Owen Sound .....	lxvi
Peterboro' .....	lxvii
Port Albert .....	lxvii
Port Elgin .....	lxvii
Port Hope .....	lxvii
Portsmouth .....	lxvii
River Sydenham .....	lxvii
Rondeau .....	lxviii
Thorabury .....	lxviii
Toronto .....	lxviii
Wellington .....	lxviii
Whitby .....	lxviii
Warton .....	lxviii

**PROVINCE OF MANITOBA :—**

Assiniboine River .....	lxix
Harbours Generally .....	lxix
Red River .....	lxix
Water Hen River .....	lxix

**NORTH-WEST TERRITORIES :—**

Saskatchewan River .....	lxix
--------------------------	------

**PROVINCE OF BRITISH COLUMBIA :—**

Fraser River .....	lxix
Harbours Generally .....	lxx
Naas River .....	lxx
Skeena River .....	lxx
Victoria Harbour .....	lxx

HARBOURS AND RIVERS GENERALLY .....	lxx
-------------------------------------	-----

SURVEYS AND EXAMINATIONS .....	lxx
--------------------------------	-----

DREDGING AND DREDGE VESSELS .....	lxxi
-----------------------------------	------

	PAGE.
DREDGE VESSELS.....	lxxi
" St. Lawrence ".....	lxxi
" Canada ".....	lxxi
" New Dominion ".....	lxxii
" Cape Breton ".....	lxxii
" Prince Edward ".....	lxxii
" Geo. McKenzie ".....	lxxii
" Challenge ".....	lxxiii
" Nipissing ".....	lxxiii
" Queen of Canada ".....	lxxiii
" No. 1 " (Elevator).....	lxxiii
" The Dredger ".....	lxxiii

## DREDGING :—

Digby	N. S.	lxxiv
Grand Goulet	"	lxxiv
Halifax	"	lxxiv
Little Glace Bay	"	lxxiv
Mabou	"	lxxiv
Pictou	"	lxxiv
Port Caledonia	"	lxxv
River Bourgeois	"	lxxv
River John	"	lxxv
Sherbrooke	"	lxxv
Tatamagouche	"	lxxv
Charlottetown, P. E. I.		lxxv
Buctouche	N. B.	lxxv
Cocagne	"	lxxvi
Grand Lake	"	lxxvi
Pointe du Chêne	"	lxxvi
Laprairie	Que.	lxxvi
River Beaudet	"	lxxvi
River Richelieu	"	lxxvi
River St. Lawrence	"	lxxvi
St. Placide	"	lxxvii
Generally	"	lxxvii
Gananoqui,	Ont.	lxxvii
Hawkesbury	"	lxxvii
Rivière au Sable	"	lxxvii
Salmon River	"	lxxvii
Thames River	"	lxxvii
Trenton	"	lxxvii
Generally	"	lxxviii

SLIDES AND BOOMS.....	lxxviii
SAGUENAY DISTRICT.....	lxxviii
ST. MAURICE DISTRICT.....	lxxix
OTTAWA DISTRICT.....	lxxix
NEWCASTLE DISTRICT.....	lxxx
ROADS AND BRIDGES .....	lxxx

	PAGE.
ROADS:—	
Temiscouata .....	lxxx
BRIDGES:—	
Des Joachims.....	lxxxii
Emerson.....	lxxxii
Portage du Fort.....	lxxxii
Union Suspension.....	lxxxii
TELEGRAPHS .....	lxxxii
MARITIME PROVINCES AND GULF OF ST. LAWRENCE. ....	lxxxii
NORTH SHORE OF THE ST. LAWRENCE .....	lxxxii
MANITOBA AND NORTH-WEST TERRITORIES.....	lxxxiii
TELEGRAPH LINES THROUGHOUT THE WORLD.....	lxxxiv
UPPER OTTAWA IMPROVEMENT.....	lxxxiv
QUEBEC HARBOUR IMPROVEMENTS:—	
LÉVIS GRAVING DOCK.....	lxxxiv
PRINCESS LOUISE EMBANKMENT.....	lxxxiv
MONTREAL HARBOUR IMPROVEMENTS:—	
CHANNEL BETWEEN MONTREAL AND QUEBEC .....	lxxxv
“SHEARER” SCHEME.....	lxxxv
GOVERNMENT PIERS AND WHARVES.....	lxxxv
OPENING AND CLOSING OF NAVIGATION.....	lxxxvi
TIME OF HIGH WATER .....	lxxxvi
ARRIVALS FROM SEA, &c .....	lxxxvi
TABLES OF DISTANCES.....	lxxxvi
ARBITRATIONS AND AWARDS.....	lxxxvi
PROPERTY LEASED, &c .....	lxxxvii
CONTRACTS.....	lxxxvii
ACTS RELATING TO PUBLIC WORKS .....	lxxxvii
ORDERS IN COUNCIL, &c.....	lxxxvii
NATIONAL ART GALLERY.....	lxxxvii
EXPENDITURE ON PUBLIC WORKS.....	lxxxvii
DEPARTMENTAL STAFF .....	lxxxviii
OFFICIAL CORRESPONDENCE.....	lxxxviii

## TABLE OF APPENDICES.

	PAGE
Appendix No. 1. Statement of Expenditure during the fiscal year. By O. Dionne, Accountant.....	1
“ 2. Report on Public Buildings throughout the Dominion. By Thos. Fuller, Chief Architect .....	17
“ 3. Report on the Heating Apparatus, Gas, Water and Bell service, &c. By Jno. R. Arnoldi, Mechanical Engineer.....	37
“ 4. Report on Harbours and Rivers, Dredges, Dredging and Surveys. By Henry F. Perley, Chief Engineer.....	41
“ 5. Report on proposed improvement to Upper Ottawa River. By Henry F. Perley, Chief Engineer.....	91
“ 6. Report on the proposed improvement of the Water Hen River, Manitoba. By Henry F. Perley, Chief Engineer.....	97
“ 7. Statement of the Dredging Plant owned by the Department of Public Works.....	103
“ 8. Report on Quebec Harbour Improvements, and Graving Dock at Lévis. By the Quebec Harbour Commissioners.....	107
“ 9. Report on the deepening of the channel between Montreal and Quebec. By the Montreal Harbour Commissioners.....	113
“ 10. Report on the St. Lawrence Bridge and Navigation Company's project (Shearer scheme). By Henry F. Perley, Chief Engineer.....	117
“ 11. Report on Slide, Booms, &c., Saguenay District. By Henry F. Perley, Chief Engineer, and Joseph Rosa, Superintendent.	151
“ 12. Report on Slides and Booms, St. Maurice District. By Henry F. Perley, Chief Engineer, and Charles Lajoie, Superintendent.....	155
“ 13. Report on Slides and Booms, Ottawa District. By Henry F. Perley, Chief Engineer, and G. P. Brophy, Superintendent.	159
“ 14. Report on Slides and Booms, Newcastle District. By Henry F. Perley, Chief Engineer, and Thos. D. Belcher, Superintendent.....	165
“ 15. Report on Public Works in British Columbia. By Hon. J. W. Trutch, C. M. G.....	173
“ 16. Statement showing Government Piers in Quebec and Ontario...	179
“ 17. Statement showing the Opening and Closing of Navigation at different Ports : also Ports that are always open.....	187
“ 18. Statement showing the time of High-water, full and change ; and rise and full of Tide, at various places.....	209
“ 19. Statement showing the number of Vessels, &c., arrived from Sea at various Ports.....	219
“ 20. Statement showing the number of Vessels constructed at principal Shipping Ports.....	223

	PAGE
Appendix No. 21. Statement showing number of Sea-going Vessels Wrecked in the St. Lawrence and on the Lakes .....	227
“ 22. Report on Government Telegraph Lines throughout the Dominion. By F. N. Gisborne, Superintendent.....	233
“ 23. Report on Telegrap Lines throughout the world. By J. A. Phillips.....	259
“ 24. Tables of distances.....	269
“ 25. Report on the traffic by Railways and Canals. By H. J. Patterson, Secretary, Montreal Board of Trade.....	329
“ 26. Statement of the Claims submitted to the Official Arbitrators. By C. Thibault, Secretary.....	339
“ 27. Statement of Property leased, purchased or sold by the Department. By A. Gobeil, Law Clerk.....	343
“ 28. Statement of Contracts entered into by the Department. By A. Gobeil, Law Clerk.....	349
“ 29. Acts relating to Public Works .....	355
“ 30. Proclamations respecting Public Works. ....	359
“ 31. Statements relating to the Extension of the Boundaries of Manitoba, and the Creation of new Districts.....	363
“ 32. List of pictures in the National Gallery .....	367
“ 33. Summary of Expenditure to 1867 ; and from 1867 to 1882.....	371
“ 34. List of Officers of the Department.....	381
“ 35. Official Correspondence of the Department.....	385
“ 36. Report on Montreal Harbour. By Major D. Cole, R. E., and Lieut S. Westmacott, R. E .....	389

CANADA.

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REPORT

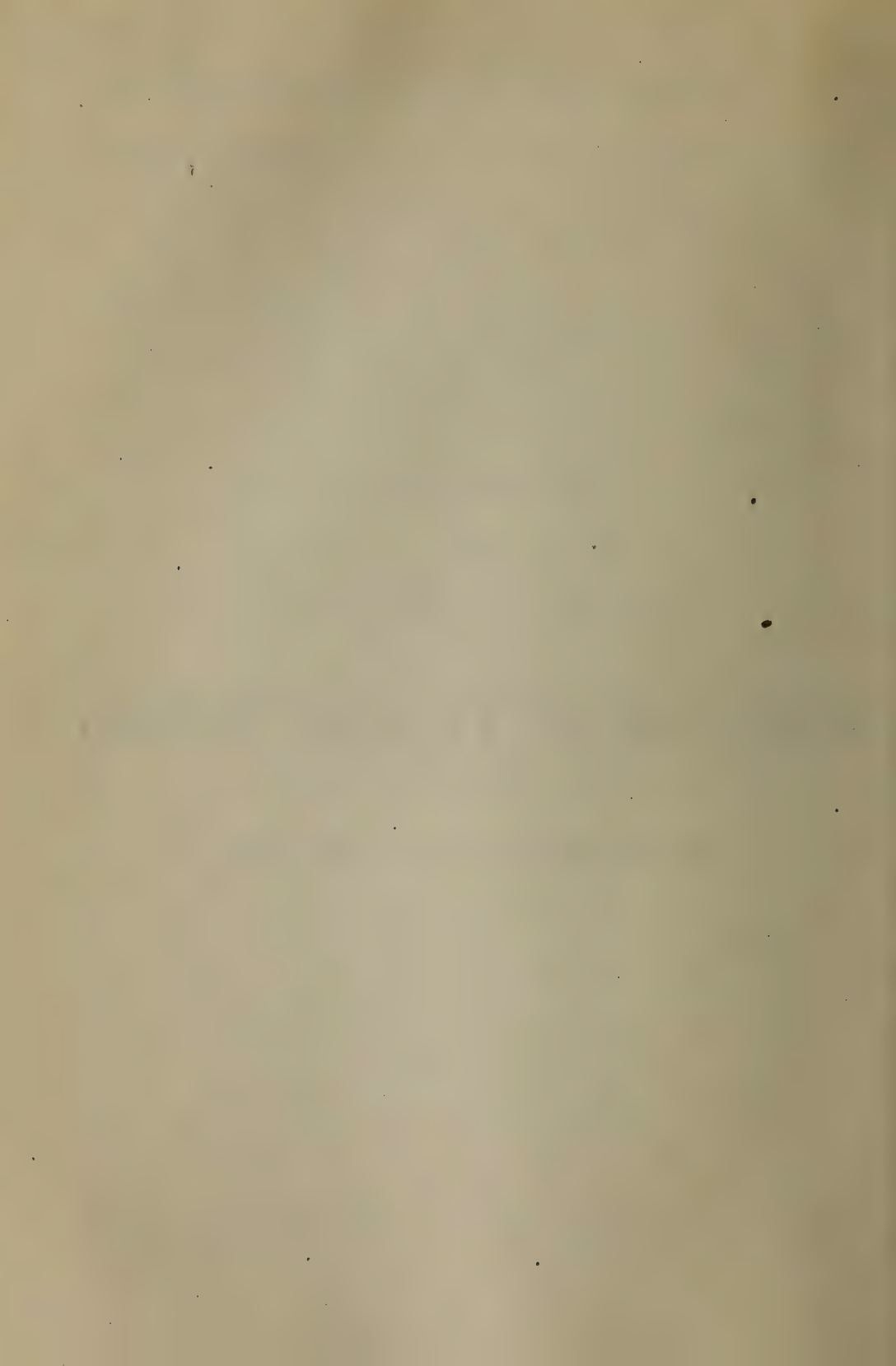
OF THE

MINISTER OF PUBLIC WORKS

FOR THE

FISCAL YEAR ENDED 30TH JUNE, 1882.

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*To His Excellency the Most Honourable Henry Charles Keith Petty-Fitzmaurice, Marquis of Lansdowne, in the County of Somerset, Earl of Wycombe, of Chipping Wycombe, in the County of Bucks, Viscount Caln and Calnstone in the County of Wilts, and Lord Wycombe, Baron of Chipping Wycombe, in the County of Bucks, in the Peerage of Great Britain ; Earl of Kerry and Earl of Shelburne, Viscount Clanmaurice and Fitzmaurice, Baron of Kerry, Lixnaw and Dunkerron, in the Peerage of Ireland ; Governor General of Canada, and Vice Admiral of the same, &c. ;*

MAY IT PLEASE YOUR EXCELLENCY,

In compliance with the requirements of the Act 31 Victoria, Chapter 12, assented to 21st December, 1867, I have the honour to submit the Annual Report of the Department of Public Works, for the fiscal year ended 30th June, 1883.

The report contains an abstract of the expenditure and operations of the Department during the past fiscal year ; and attached to it are thirty-six Appendices, giving the Annual Reports of the Chief Architect, Chief Engineer and other officers of the Department, together with a number of tabulated statements and information pertaining to this Department.

The works under the control of this Department are :—

PUBLIC BUILDINGS, their construction and maintenance.

HARBOURS AND PIERS, their improvement and construction.

WORKS ON NAVIGABLE RIVERS.

DREDGING AND DREDGE VESSELS.

ROADS AND BRIDGES.

SLIDES AND BOOMS.

TELEGRAPHS.

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## GENERAL EXPENDITURE.

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By the Act 45 Victoria, Chapter 2, assented to on 17th May, 1882, the sum of \$2,341,475.00 was appropriated for expenditure on Public Works and Buildings during the fiscal year ending 30th June 1883 ; and by the Act 46th Victoria, Chapter 2, assented to 25th May, 1883, a further sum of \$279,594.54 was granted, making a total of \$2,621,069.54. The expenditure during the year on account of these appropriations has been \$2,029,359.15, a detailed statement of which will be found in Appendix No. 1, pages 3-16.

In addition to this expenditure the following amounts have been paid under the authority of Special Acts of Parliament for works not performed under the immediate supervision of this Department:—

St. Lawrence River, deepening between Quebec and Montreal; under authority Act 45 Victoria, Chapter 44...	\$280,000
Quebec Harbour Improvement; under authority Act 45 Victoria, Chapter 47.....	66,540
Lévis Graving Dock; under authority Act 38 Victoria, Chapter 56.....	75,000
Total.....	<u>\$121,540</u>

Below will be found details with reference to expenditures on Public Buildings, Harbours and Rivers, &c.

## PUBLIC BUILDINGS.

The amount granted by the Act 45 Victoria, Chapter 2, for the construction of Public Buildings, was \$821,625.00; for military works, \$37,500, and for repairs, maintenance, &c., \$268,300.00; and by the Act 46 Victoria, Chapter 2, further sums of \$191,995.35 for construction, and \$39,610.00 for repairs, &c., were voted, making a total of \$1,359,030.35 appropriated at the Sessions of 1832 and 1833, for the construction, repairs and maintenance of Public Buildings during the fiscal year ending 30th June, 1883. Of this sum, \$84,500 was chargeable to capital and the remainder to income. The expenditure during the year has been \$1,013,039.39.

The appropriations and expenditures by Provinces are shown in the following table:—

	Appropriations.	Expenditure, including Repairs and Maintenance.*
Nova Scotia.....	\$49,250 00	\$20,487 54
Prince Edward Island .....	8,100 00	3,651 21
New Brunswick .....	103,800 00	82,048 74
Quebec.....	219,145 35	165,056 25
Ontario.....	642,185 00	568,167 23
Manitoba ...	162,150 00	125 746 70
Disputed Territory.....	6,000 00	2,063 60
North-West Territory.....	45,000 00	7,812 27
British Columbia.....	43,000 00	27,750 84
Public Buildings generally.....	15,000 00	10,255 01
* Repairs, heating, &c., gen'ly.	65,400 00	
Totals.....	<u>\$1,359,030 35</u>	<u>\$1,013,039 39</u>

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PROVINCE OF NOVA SCOTIA.

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AMHERST.

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## PUBLIC BUILDING.

A site known as the Court House lot was offered ; but as the vote for this building (\$10,000) was not available until after the 1st of July, 1883, no action had been taken at the close of the fiscal year.

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ANTIGONISH.

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## PUBLIC BUILDING.

By the Act 45 Vic., Chap. 2, the sum of \$2,250 was voted for the purpose of obtaining a building suitable for Post Office, Custom House, &c.; and on 12th April, 1882, the lot and building at the corner of College and Main streets, was purchased for the sum of \$1,750. The building is of wood, two stories high, measures 48 by 32 feet, and was being fitted up as offices at the close of the fiscal year ; up to which time the expenditure had been \$2,072.34.

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HALIFAX.

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## DOMINION BUILDING.

The sum of \$2,245.02 was expended for repairs during the year.

## PENITENTIARY.

The sum of \$400.99 was expended for repairs during the year.

## QUARANTINE STATION.

The sum of \$5,000 was appropriated for this station during the Session of 1882 but up to the close of the fiscal year a suitable site had not been obtained, and no expenditure had taken place.

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NEW GLASGOW.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$6,000 was voted for the purpose of securing a site for a Public Building at this place; and on the 18th and 30th June, 1883,

two lots at the corner of Dalhousie and Prevost streets, 57 by 57 feet and 57 by 43 feet respectively, were purchased for \$2,660 and \$2,100. At the close of the fiscal year plans and specifications were being prepared for the building. Expenditure during fiscal year, \$4,768.00.

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### NORTH SYDNEY, C.B.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was voted for a Public Building at this place to accommodate the local Post, Customs and other offices; but up to the close of the fiscal year a suitable site had not been obtained, and only a small expenditure of \$10.50 had been made.

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### PICTOU.

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#### MARINE HOSPITAL.

At the Session of 1883 the sum of \$6,000 was voted for the erection of a Marine Hospital at this place; and on 20th July, 1882, a lot of four acres on the north side of Pictou Harbour was purchased for the sum of \$1,545. Plans and specifications were prepared by this Department for a building capable of accommodating eight patients, (a description of which was given in last year's report), and on the 14th of August, 1883, a contract was entered into with Messrs. McDonald and Stewart for the construction of the building, the contract price being \$5,735. The work has been satisfactorily carried on, and the building will probably be ready for occupation early in 1884. Expenditure during fiscal year, \$3,102.72.

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### SYDNEY, C.B.

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#### INLAND REVENUE OFFICE.

A small expenditure amounting to \$17.50 was made during the year.

#### QUARANTINE STATION.

At the Session of 1882 the sum of \$2,000 was appropriated for a quarantine station at this place; and at last Session a further grant of \$2,000 was made. A site of two acres at Point Edward was expropriated, and the sum of \$164.40 deposited in the Supreme Court of Nova Scotia, in accordance with the Expropriation Act. On the 23rd February, 1883, a contract was entered into with Mr. Hugh McDonald for the erection of five wooden buildings for the sum of \$3,750; but work was not commenced until after the close of the fiscal year. The buildings

will consist of a Superintendent's house, 33 ft. 6 in. by 27 ft., two stories and basement; two one-story hospitals, each having a ward 29 by 21 ft., a wing 24 by 12 ft. for surgery and kitchen, and a 12 by 12 ft. wing for nurses; a wash house 21 by 21 ft.; and a fuel shed 39 by 16 ft. Expenditure during fiscal year \$178.48.

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TRURO.

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## PUBLIC BUILDING.

At the Session of 1882 the sum \$15,000 was voted for the erection of a Public Building at Truro, to contain Post Office, Custom House and Savings Bank; and on 22nd June, 1883, a lot 131 by 115 feet, at the corner of Lorne and Prince Streets, was purchased for the sum of \$4,000. At the end of the fiscal year plans and specifications for a suitable building were being prepared. Expenditure during year, \$4,018.00.

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WINDSOR.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$5,000 was appropriated for a site for a Public Building at Windsor, to contain Custom House, Post Office, &c.; and on 13th January, 1883, a lot on Gerrish street, 120 by 106 feet, was purchased for the sum of \$2,500. At the close of the fiscal year plans and specifications were being prepared by the Department for the building. Expenditure during fiscal year \$2,573.45.

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PROVINCE OF PRINCE EDWARD ISLAND.

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CHARLOTTETOWN.

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## DOMINION BUILDING.

At the Session of 1882 the sum of \$2,500 was appropriated for repairs to this building; and during the fiscal year the sum of \$1,240.91 was expended on such repairs.

## MARINE HOSPITAL.

At the Session of 1882 the sum of \$600 was voted for a Marine Hospital at Charlottetown; but construction had not been commenced at the close of the fiscal year. Expenditure during year, \$72.35, for advertising, &c.

## MILITARY BUILDINGS.

Necessary repairs were made during the year, and the sum of \$691.20 expended.

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SOURIS.

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## MARINE HOSPITAL.

During the year a wash-house was built at an expense of \$73.00.

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SUMMERSIDE.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$5,000 was appropriated for a Public Building at Summerside; and on 26th March, 1883, a lot 131 by 61 feet, situated at the corner of Summer and Fitzroy streets, was purchased for \$693. At the close of the fiscal year plans and specifications for the building were being prepared by this Department. Expenditure during year, \$817.97.

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PROVINCE OF NEW BRUNSWICK.

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CARLETON (St. JOHN).

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## POST OFFICE.

At the Session of 1882 the sum of \$6,000 was appropriated for the erection of a Post Office at Carleton, which was increased to \$10,000 during the session of 1883. On 16th December, 1882, a site 50 by 100 feet, on Union street, was purchased from the City of St. John for the sum of \$900; and on 18th May, 1883, a contract was entered into with Messrs. Causey, Bond & Milden for the construction of the building for \$8,951. The building will be of brick, on stone foundations, with stone strings, sills and lintels to windows, the floors and roof being of wood. The main portion of the building will be two stories high, having a frontage of 40 feet on Union street, with a depth of 19 feet; and the rear portion will be one story, 41 by 23 feet. The basement will be for storage; ground floor for Post Office, and first floor for a caretaker. Expenditure during year, \$996.43.

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CHATHAM.

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## PUBLIC BUILDING.

This building, which was purchased in 1872 and is used as Custom House, Post Office and Inland Revenue Offices, underwent extensive repairs during the year, the amount expended being \$2,050.00.

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DORCHESTER.

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## PENITENTIARY.

At the Session of 1882 an appropriation of \$25,500 was voted to continue the construction of the new cell-wing and boiler house, a contract for which was entered into, on 23rd November, 1880, with Messrs. T. S. McManus & Son. Owing to the failure of these gentlemen to complete their contract, new tenders were invited and the unfinished portion of the work awarded to Mr. D. A. Duffy, who entered into a contract with the Department on 13th June, 1883, to complete the work for \$44,500. Preparations were being made at the close of the year for the construction of an additional water tank of 200,000 gallons capacity. Amount expended during the year, \$18,983.42 for construction, and \$20 for repairs.

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FREDERICTON.

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## POST OFFICE, &amp;c.

The sum of \$170.95 was expended for repairs during the year.

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MONCTON.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$15,000 was appropriated for a Public Building at Moncton, to contain Custom House, Post Office, &c.; and on the 22nd February, 1883, a site at the corner of Main and Telegraph streets was purchased for the sum of \$4,500. Plans and specifications were being prepared by the Department at the close of the fiscal year. Expenditure during the year, \$4,811.10.

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NEWCASTLE.

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## POST OFFICE.

At the Session of 1882 the sum of \$4,000 was voted for a Post Office at Newcastle; but up to the close of the fiscal year no action had been taken.

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ST. JOHN.

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## CATTLE QUARANTINE.

At the Session of 1882 the sum of \$3,000 was voted for the establishment of a cattle quarantine station at St. John; but up to the close of the fiscal year a suitable site had not been obtained, and no expenditure had taken place.

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CUSTOM HOUSE.

During the year the footpaths, boundary wall, &c., referred to in last year's report were completed at an expense of \$1,703.65, and the sum of \$398.75 was spent on necessary repairs.

## FORT DUFFERIN.

The crib-work retaining wall around the foot of the cliff to resist the encroachment of the sea, which was referred to in last year's report, was completed during the year at a cost of \$4,958.28.

## MARINE HOSPITAL.

At the Session of 1882 a further sum of \$15,000 was granted to continue this building, which is being erected on the grounds of the old hospital. A description of the new building will be found in last year's report. Work has been carried on continuously during the year, but not so expeditiously as was anticipated, and the building was not completed at the close of the fiscal year. Drawings and specifications for a hot water heating apparatus are being prepared. Expenditure during year, \$20,714.75.

## MILITARY BUILDINGS.

The sum of \$1,168.85 was expended on necessary repairs, the amount being taken out of the general vote for such purposes.

## PENITENTIARY.

Slight repairs were found to be necessary, and were made at a cost of \$76.25.

## POST OFFICE.

At the Session of 1882 an additional grant of \$2,300 was made for finishing the clock tower and completing the furnishing of the building; and during the fiscal year these works having been executed at a cost of \$3,539.50. The sum of \$147.35 was also spent on necessary repairs.

## SAVINGS BANK.

The sum of \$288.35 was expended on necessary repairs.

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ST. STEPHEN.

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PUBLIC BUILDING.

At the Session of 1882 the sum of \$15,000 was appropriated for the purpose of erecting a building to accommodate the local Customs, Post and other offices at St. Stephen; but up to the close of the fiscal year a suitable site had not been obtained, and no expenditure had been made.

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SUSSEX.

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## PUBLIC BUILDING.

At the Session of 1882 an additional grant of \$7,000 was made for the construction of this building, a full description of which will be found in last year's report; and at the Session of 1883 a further sum of \$4,000 was appropriated. The building is now completed, and supplied with a hot air heating apparatus. Expenditure during the fiscal year, \$15,682.15.

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WOODSTOCK.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$7,000 was granted for the erection of a suitable building to contain the local Customs, Post and other offices, for which a site had been obtained at the corner of Regent and Main streets; and, on 16th March, 1883, a contract was entered into with Mr. Joshua Limerick for the erection of the building, the contract price being \$14,550. The building will be of brick, on stone foundations, with cut stone plinths, string courses, cornices, &c., the roof and floors of wood, the former covered with slates. The main building will be 37 by 55 feet, exclusive of a front projection, 19 by 7 feet, having two stories, basement and attic. There will be a one story addition, 46 by 18 feet, for Weights and Measures Office, &c. Expenditure during the fiscal year, \$1,210.56.

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PROVINCE OF QUEBEC.

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BURY.

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## DRILL SHED.

At the Session of 1882 the sum of \$600 was voted for repairs to this building; but up to the close of the fiscal year no expenditure had been made.

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## CHAMBLY FORT.

This historic fort being in a state of dilapidation, and threatened with entire decay through the ravages of time, the sum of \$1,865.73 was spent out of the general vote for repairs, for the purpose of preserving, as far as possible, the ruins in their present condition.

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CHICOUTIMI.

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## MARINE HOSPITAL.

The construction of this building, which was fully described in last year's report, was continued during the year, on the appropriation brought forward from 1882, and at the close of the fiscal year was nearly completed. Expenditure during the year, \$6,086.50.

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GROSSE ILE.

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## QUARANTINE STATION.

At the Session of 1882 the sum of \$3,000 was granted for the erection of a summer residence for the Protestant Chaplain; but up to the close of the fiscal year no expenditure had taken place.

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HULL.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$10,200 was voted for the construction of a building to accommodate the local Customs, Post and other offices, on a site on Main street, which was donated by the heirs Wright. On the 6th of July, 1882, a contract for the erection of the building, which was fully described in last year's report, was entered into with Mr. William Toms for the sum of \$15,000, and the work of construction has been steadily carried on, so that it is expected that the building will be ready for occupation by 1st of January, 1884. Expenditure during the year, \$7,621.44.

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LÉVIS.

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## FORTIFICATIONS.

At the Session of 1882 a further sum of \$2,500 was voted for the forts at Lévis. During the year the roofs of forts Nos. 2 and 3 have been completed, and essential repairs made to forts Nos. 1, 2 and 3. Expenditure, \$6,868.00.

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## IMMIGRANT BUILDING.

At the Session of 1883 the sum of \$57,000 was voted for the purchase of a wharf and site on which to replace the buildings destroyed by fire on 3rd June, 1882; but up to the close of the fiscal year the site had not been secured, and only a small expense of \$245.00 incurred

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MONTREAL.

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## CUSTOM HOUSE.

That part of the building previously used as an Examining Warehouse, has been changed into offices; and all the occupied portions of the building cleaned and painted. Expenditure on construction, \$801.28, and on repairs \$222.64.

## DRILL HALL.

At the Session of 1882 the sum of \$20,000 was voted for the purpose of putting a new roof on the Montreal Drill Hall—the roof of which fell in some years ago, and was not replaced. Plans and specifications were prepared by this Department; and on 27th June, 1883, a contract was entered into with Messrs. J. B. St. Louis & Bro., for the sum of \$29,897. Up to the close of the fiscal year the expenditure had only been \$281.20, for advertising for tenders, &c.

## EXAMINING WAREHOUSE.

Plans and specifications are being prepared for a one-story addition to this building, to be used for the storage of heavy hardware, and for the construction of iron and brick floors in place of those now in use, which have become decayed. Expenditure during the year, \$190.00 on construction account, and \$1,072.05 for repairs.

## IMMIGRANT BUILDING.

The sum of \$564.50 was expended on necessary repairs.

## INLAND REVENUE OFFICES.

At the Session of 1882 the further sum of \$9,800 was voted to complete the alterations and additions to this building, and to provide a heating apparatus. On the 25th July, 1882, a contract was entered into with Messrs R. Mitchell & Co., for a heating apparatus at a cost of \$1,745. The alterations &c., have been completed and the building occupied. Expenditure during the year, \$12,495.80.

## MUSEUM.

A small expenditure of \$29.60 has been made for repairs.

## POST OFFICE.

At the Session of 1882 the sum of \$5,500 was granted for necessary alterations, and to provide a clock for the clock tower, and a hoist. The alterations have been completed and the clock obtained. Expenditure during fiscal year, \$3,840.72 on construction account, and \$121.16 for repairs.

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QUEBEC.

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## ARTILLERY BARRACKS.

The sum of \$1,016.37 was expended during the year on necessary repairs.

## CARTRIDGE FACTORY.

At the Session of 1882 the sum of \$5,000 was granted for providing heating apparatus, shooting sheds, additional plant, &c. These improvements have been carried out. Expenditure during fiscal year, \$5,609.40.

## CITADEL.

At the Session of 1882 an additional sum of \$15,000 was voted for the purpose of continuing the work of rebuilding portions of the walls which were falling into decay and to repair some of the bastions, &c. During the year these works have been successfully carried out. Expenditure, \$21,148.43. The sum of \$2,325.50 was also spent on necessary repairs to His Excellency's quarters and other buildings within the Citadel walls.

## CITADEL CLIFF.

At the Session of 1882 a further sum of \$2,500 was granted for the purpose of continuing the purchase of buildings on Champlain street, which were endangered by the falling of loose stones from the Citadel cliff, and the erection of a retaining wall at the foot of the cliff. On 18th September, 1882, lot No. 2,263, on Champlain street, was purchased from J. Coveney, for \$2,200; and at the close of the fiscal year plans were being prepared so that tenders for the extension of the retaining walls could be called for. Expenditure during the year, \$2,415.10.

## CULLER'S OFFICE.

Repairs to the amount of \$195.50 were made during the year.

## CUSTOM HOUSE.

Some slight repairs were made, costing \$90.00.

## DUFFERIN TERRACE.

At the Session of 1882 an additional sum of \$6,000 was voted to continue the wall under Dufferin Terrace; and the work was successfully carried out during the year. Expenditure, \$11,459.82.

## EXAMINING WAREHOUSE.

At the Session of 1882 the sum \$20,000 was voted on account of the erection of an Examining Warehouse at Quebec, on Government property in rear of the Custom House; and on 15th March, 1883, a contract was entered into with Mr. D. O'Brien for the construction of the building, the contract price being \$53,000. The building

will be of stone, resting on piles, 149 by 68 feet, two stories high, with an attic over the central portion. The pilasters, cornice, &c., to principal doorway, and the plinth, window jambs and arch-stones are to be of cut stone, and the walling generally to be random coursed work. Floors and roof to be of wood, the latter covered with galvanized iron. Expenditure during fiscal year, \$1,286.07.

#### FORTIFICATIONS.

At the Session of 1882 the sum of \$15,000 was voted for rebuilding and repairing portions of the walls above Kent Gate, for connecting certain drains with the city drains, and for rebuilding a portion of the wall below St. John's Gate. On 13th September, 1882, a contract was entered into with Mr. Charles Jobin for a portion of the work, the contract price being \$3,732; and the remainder has been carried on under the immediate superintendence of this Department. Expenditure during the year, \$16,570.54.

#### GAS INSPECTOR'S OFFICE.

Trifling repairs to the amount of \$38.47 were executed during the year.

#### MILITARY BUILDINGS.

During the year the sum of \$1,358.05 was expended in various necessary repairs to the different Military Buildings in the city.

#### POST OFFICE.

Small repairs to the amount of \$55.18 were executed at the Post Office.

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### SHERBROOKE.

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#### DRILL SHED.

At the Session of 1882 the sum of \$550 was voted for the purpose of making an addition to the Sherbrooke Drill Shed, to be used as a Cavalry Armory instead of the old jail, which was found to be unsuitable. During the year the improvements were carried out at a cost of \$573.58.

#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$20,000 was voted on account of this building, which is intended for Post, Customs and other offices, and for the construction of which a contract had been entered into with Messrs. Robillard & Murphy. A full description of the building appeared in last year's report. During the fiscal year the contractors have not carried on the work as rapidly as was anticipated; but at the close of the year it was expected that the building would be covered in this autumn and completed during the winter. Expenditure \$11,653.31.

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ST. HELEN'S ISLAND.

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MILITARY BUILDINGS.

At the Session of 1882 an additional sum of \$2,000 was granted for the purpose of carrying out repairs to the Military Buildings on St. Helen's Island, partly destroyed by fire some years ago. On the 7th August, 1882, a contract was entered into with Mr. W. McDonald for the sum of \$9,416, and during the fiscal year the work was completed. Expenditure, \$10,402.17.

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ST. JOHN'S.

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POST OFFICE.

A small expenditure of \$744.37 was made for fittings during the year.

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ST. REGIS.

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CUSTOM HOUSE.

Trifling repairs were made at a cost of \$8.00.

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ST. VINCENT DE PAUL.

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PENITENTIARY.

At the Session of 1882 an additional sum of \$8,750 was voted to continue the works at this Penitentiary; and the sum of \$750 was also voted for the purchase of rubber hose. During the year the stone dining hall, 127 by 68 feet, has been continued. The dining hall will occupy the principal floor, the basement being used for kitchen, bath and store rooms, &c., and the attic as a drying room. Several small buildings and a drain have also been built. Expenditure, \$19,071.93 on construction account, and \$60 for repairs.

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THREE RIVERS.

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CUSTOM HOUSE, &c.

At the Session of 1882 the additional sum of \$4,900 was voted to continue the alteration of the old barracks into offices, to be used by the Customs and Inland Revenue officers, and the Superintendent of the St. Maurice River works. During

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the year the alterations have been completed, and the building occupied. Expenditure, \$8,359.34 on construction and alterations, and \$313.39 for repairs.

POST OFFICE.

Plans were being prepared at the close of the year for altering the former Custom House, so as to adapt it for use as a Post Office.

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PROVINCE OF ONTARIO.

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AMHERSTBURG.

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PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was voted for the purpose of erecting a Public Building at Amherstburg, suitable for the local Post, Customs and other offices. On 12th May, 1883, a site, 90 by 120 feet, at the corner of Dalhousie and Richmond streets, was purchased for the sum of \$2,200; and at the close of the fiscal year plans and specifications for the building were being prepared, by this Department. Expenditure during the fiscal year \$2,339.76.

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BARRIE.

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PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was appropriated for the purpose of erecting a building suitable for Post Office, Custom House, etc., on a site donated by the Corporation; and at the close of the fiscal year plans and specifications were being prepared so that tenders might be called for.

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BRANTFORD.

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PUBLIC BUILDING.

Some necessary repairs were made during the year at a cost of \$250.59.

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BELLEVILLE.

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PUBLIC BUILDING.

At the Session of 1882 an additional sum of \$20,000 was voted towards the construction of this building, which was fully described in last year's report.

On 30th November 1882 a contract was entered into with Messrs. Northcott & Alford for heating apparatus, &c., the contract price being \$4,100; and on 28th February, 1883, a contract was made with Mr. John Forin for interior fittings, the amount being \$2,460. During the year the work has been so carried on that the building was completed and occupied this autumn. Expenditure \$30,170.47.

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### BERLIN.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was appropriated for a Public Building at Berlin, suitable for Post Office, &c.; but up to the close of the fiscal year a site had not been obtained. Expenditure \$20.00.

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### BOWMANVILLE.

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#### DRILL SHED.

During the last fiscal year the sum of \$1,038 was expended in repairing this Drill Shed.

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### BROCKVILLE.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$20,000 was voted towards the construction of a Public Building in Brockville, suitable for the local Post, Customs and other offices. On the 5th October, 1882, an order was obtained from the High Court of Justice for Ontario vesting in Her Majesty the Morris lot on Court House Avenue, containing 6,812 sq. feet, which had been expropriated; and on 10th February, 1883, a contract for the erection of the building was entered into with Messrs. Tompkins, Crain, & Co., for the sum of \$37,320. The main building will be two stories high, with basement and attic, having a frontage of 67 feet on Court House Avenue, by a depth of 61 feet; and in the rear will be a one-story building 66 by 28 feet. The front of the main building and 15 feet of a return at each front angle will be of Credit Valley sandstone, and the remaining walls in both buildings brick, on stone foundation, with stone strings, sills and lintels. Floors and roof to be of wood, the latter covered with slates. Expenditure during the year, \$3,652.83.

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CHATHAM.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$20,000 was voted towards providing a Public Building at Chatham capable of accommodating the local Post, Customs and other offices. On 30th August, 1881, part of lot No. 94, at the corner of King and Fourth streets was purchased for \$8,000, and on 19th May, 1883, an adjoining lot, 25 by 56 feet was purchased for \$2,500. On the 20th September, 1882, a contract was entered into with Mr. J. E. Askwith for the construction of the building, the contract price being \$27,640, and the work has been proceeded with during the year. The main building will have a frontage of 50 feet on King street, by a depth of 48 feet, and will be two stories high, with basement and attic. In the rear will be a one-story building, 50 by 61 feet, with extensions 25 by 20 feet, and 13 by 12 feet. All the buildings are to be of brick, on stone foundations, with stone cornices, strings, quoins, jambs, &c., on street fronts. Expenditure during the year, \$8,265.96.

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CLIFTON.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$4,000 was appropriated towards the purchase of a site and the erection of a building at Clifton, to accommodate the local Post, Customs and other offices. On 19th December, 1882, a site at the corner of Clifton Avenue and Park street, 80 by 90 feet, was purchased for \$1,600; and on 9th May, 1883, a contract was entered into with Mr. J. E. Askwith for the erection of the building, the contract price being \$28,000. The main building will have a frontage of 44 feet on Clifton Avenue, by a depth of 62 feet on Park street, and will be two stories high, with basement and attic. There will also be a one story building having a frontage of 22 feet on Clifton avenue by a depth of 74 feet which will be used as an Examining Warehouse. Both buildings will be of stone, with wooden floors and roofs, the latter covered with slates. The plinth, labels, window jambs, cornices, &c., will be of cut stone, and the remainder of the walling of quarry faced stone in random coursed work. Expenditure during fiscal year, \$1,852.67.

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COBOURG.

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## PUBLIC BUILDING.

At the Session of 1882 the sum of \$14,000 was voted for the purpose of obtaining a building suitable for the local Post, Customs and other offices; and on 18th October, xxxiii

1882, the building formerly used by the Bank of Montreal at the corner of King and Division streets, was purchased for \$12,000; and at the close of the fiscal year plans were being prepared for necessary alterations to adapt it to the purposes for which it is needed. Expenditure during year \$12,105.30.

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### CORNWALL.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$20,000 was voted towards the erection of a Public Building in Cornwall, suitable for the local Post, Customs and other offices, for which a site, 100 by 80 feet, at the corner of Pitt and Second streets had been purchased. On 28th July, 1882, a contract was entered into with Messrs. Gordon & Ross for the erection of the building, the contract price being \$27,698.63; and the work was being proceeded with at the close of the fiscal year. The main building will be two stories, with basement and attic, and will extend 50 feet on Second street by 66 feet on Pitt street, with a projection for stairway in rear 24 by 12 feet; and there will be a one story-building in the rear 78 by 22 feet. The walls will be of limestone, with cut quoins, pilasters, jambs, &c., the filling in being of random coursed rubble. The floors and roof will be of wood, the latter covered with slates on the main building, and galvanized iron on rear building. The angle bays on Pitt street will project and be carried up as towers, capped with pyramidal roofs, the stone work of that at the intersection of the two streets being 28 feet over the main cornice, and the other 7 feet. The principal tower will be arranged for the reception of a clock. Expenditure during the fiscal year, \$11,441.01.

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### GALT.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was voted for the erection of a Public Building suitable for Post Office, &c., but up to the close of the fiscal year a site had not been obtained and no expenditure had been made.

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### GANANOQUI.

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#### CUSTOM HOUSE.

At the Session of 1883 the sum of \$1,200 was appropriated for the purchase of a site for a Custom House; and on 17th June, 1883, lot No. 580, at the corner of Main

and River streets was bought for \$1,000. At the close of the fiscal year plans had been prepared and tenders would shortly be invited for the building, which will be of brick, on stone foundations, two stories in height with partial basement and attic, and have a frontage of 37 feet on Main street and 41 feet on River street. There will be a two story wing in the rear 24 by 19 feet. Expenditure during fiscal year, \$1,129.63.

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### GUELPH.

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#### CUSTOM HOUSE.

The sum of \$183 was spent on repairs during the fiscal year.

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### HAMILTON.

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#### IMMIGRANT SHED.

At the Session of 1883 the sum of \$4,000 was appropriated towards providing an Immigrant Shed at Hamilton. On 2nd August, 1882, parts of lots 2 and 3 on Stuart street, opposite the Great Western Railway station, were purchased for \$1,450; and on 30th December, 1882, a contract was entered into with Mr. John Knapman for the erection of the building, the contract price being \$3,363. The building is of wood, two stories high, 30 by 22 feet, with a one-story wing in the rear 70 by 24 feet. On the ground floor are the immigrants' quarters, wash-rooms, &c., and on the first floor are the caretaker's quarters. Expenditure during fiscal year, \$2,545.94.

#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$40,000 was voted towards erecting a building in Hamilton, suitable for Postal, Customs and other offices, on the site at the corner of King and John streets, purchased on 19th July, 1881, for \$35,958.32. Plans and specifications were prepared by the Department and tenders invited; and on 15th August, 1882, a contract was entered into with Messrs. Van Allen, Brown & Love for the erection of the building, the contract price being \$232,000. This will be a very handsome pile of buildings, suitable for the public offices of a city of the size and commercial importance of Hamilton. There will be a main building on King and John streets, L shaped, covering an area of 10,500 feet, and a detached building on Main street covering an area of 3,750 feet. The street elevations are to be of Credit Valley stone, backed with brick, and the remaining walls of brick. The main building will be three stories with basement and attic. The main cornices will be 70 feet above the sidewalk. At the intersection of the

streets will be a clock tower, and at the other angles of the street fronts two turrets. The clock tower is to be 177 feet, and the others 128 feet from the side walk to the top of the finials. A full description of the building will be found in Appendix No. 2, pages 29 and 30. Expenditure during the fiscal year, \$32,491.45.

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## KINGSTON.

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### CUSTOM HOUSE.

During the year the sum of \$1,629.70 has been expended on general repairs which were needed.

### FORTIFICATIONS.

At the Session of 1883 the sum of \$1,025 was voted for repairs to Fortifications and Military Buildings; and at the Session of 1883 a further sum of \$550 was granted for that purpose. During the year various alterations and repairs have been executed at Fort Frederick, Tête de Pont Barracks and the military works generally. Expenditure during the fiscal year, \$1,852.59.

### INLAND REVENUE OFFICE.

During the fiscal year the sum of \$239.50 was expended on necessary repairs.

### PENITENTIARY.

At the Session of 1882 a further sum of \$12,500 was granted for heating apparatus and for dining hall and work shops; and at the close of the fiscal year the work was in progress. A breakwater 200 by 30 feet was also in course of construction. Expenditure during the year, \$16,936.46.

### POST OFFICE.

During the fiscal year the sum of \$435.82 was expended on necessary repairs.

### ROYAL MILITARY COLLEGE.

An addition of two rooms to the Mechanical Engineer's dwelling was made during the year, and several necessary repairs made. Expenditure, \$6,133.84.

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## LONDON.

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### CUSTOM HOUSE.

During the fiscal year the sum of \$766.76 was expended on necessary repairs.

### MILITARY BUILDINGS.

Necessary repairs were made to the Drill Shed and other Military Buildings during the year. Expenditure, \$1,358.91.

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POST OFFICE.

The increased business of this office having necessitated a re-arrangement of the interior and the addition of new fittings, the sum of \$7,500 was appropriated for the purpose at the Session of 1882; and on 20th September 1882, a contract was entered into with Mr. John Christie for alterations, the contract price being \$5,490. These alterations have been satisfactorily made; and at the close of the year the construction of a steam heating apparatus was being carried out. Expenditure, \$7,459.73.

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NIAGARA.

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BARRACKS.

Some general repairing was done during the year. Expenditure, \$876.44.

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OTTAWA.

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DEPARTMENTAL BUILDING, WELLINGTON STREET.

The great increase in the business of the country, and the consequent enlargement of the Departmental staffs, has, for some time past, caused overcrowding in the Departmental Buildings; and as these cannot be further enlarged without somewhat spoiling their symmetry, it was decided to acquire a suitable site outside of the Parliament grounds, and there erect a new Departmental Building. For this purpose the sum of \$84,000 was voted at the Session of 1883, and the northern half of the block bounded by Wellington, Metcalfe, Elgin and Sparks streets, which fronts on Wellington street, was acquired. At the close of the fiscal year plans and specifications were being prepared by the Department, so that tenders may be invited and work commenced this autumn. Expenditure during the year, \$70,419.95.

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DRILL SHED.

The sum of \$1,036.40 was expended on constructing latrines; and \$54.40 for some slight repairs.

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GEOLOGICAL MUSEUM.

The roof of the caretaker's house was renewed, and some other repairs effected. Expenditure, \$1,343.22.

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NEPEAN POINT.

Some repairs were made to the powder magazine and fences. Expenditure, \$249.25.

## POST OFFICE.

Extensive alterations were commenced just before the close of the fiscal year in order to afford sufficient accommodation for the Money Order and Registered Letter Branches, the business of both of which had very greatly increased. On account of the free delivery of letters, the number of letter boxes and the space in the public lobby were found to be greater than was required; some of the boxes were therefore removed, and the lobby curtailed by taking a portion off each end. The Sparks and Wellington street doors were converted into windows, and the entrance to the lobby confined to the door opening on the esplanade in front of the building. Expenditure during the year, \$676.82.

## PUBLIC BUILDINGS.

At the Session of 1882 the further sum of \$5,000 was granted to complete the new exit from the galleries of the two Houses of Parliament, and also the sum of \$4,000 for improving the ventilation and \$800 to provide glass panels in office doors of Departmental Building, as a better protection against fire. During the fiscal year these improvements have been carried out, as well as others in the Commons Chamber and to the Houses of Parliament generally, while necessary repairs have been made to the Eastern and Western Departmental blocks, and the grounds have been kept in good order. The following contracts have been entered into during the year in connection with the Public Buildings: 22nd August 1882, with Mr. G. M. McCullough for coal for 1882-83, amount of contract \$3,605; on 4th December, 1882, with Mr. A. Devlin for the removal of snow during winter of 1882-83, amount \$425. The expenditure during the year on account of Public Buildings and grounds has been, Construction \$3,860.50; Alterations and repairs, \$120,826.66; Staff and maintenance, \$95,086.25.

## RIDEAU HALL.

Essential repairs, cleaning, painting, papering and minor alterations have been done to Rideau Hall during the year, the work being performed under the immediate superintendence of this Department. On 1st December, 1882, a contract was entered into with Mr. J. A. Hunter for removing the snow during the winter of 1882-83, the contract price being \$365. The expenditure during the year has been, Repairs and alterations, \$31,222.86; for Staff and maintenance, \$8,379.15.

## STATUE OF THE LATE SIR GEO. E. CARTIER, BART.

At the Session of 1882 the sum of \$10,000 was granted for the purpose of erecting a statue to the late Sir George E. Cartier, Bart. In August, 1882, artists were invited by public advertisement to submit models, and in January, 1883, models were received from twenty-one Foreign and Canadian artists. The model submitted by Mr. L. P. Hébert, of Montreal, was considered the best, and he was awarded the first premium. On 7th May, 1883, a contract was entered into with him to fur-

nish a bronze statue, the contract price being \$5,400. Expenditure during the fiscal year, \$1,319.13.

SUPREME COURT.

The sum of \$1,029.43 was expended during the year for necessary furniture and repairs.

PORT HOPE.

PUBLIC BUILDING.

At the Session of 1882 the sum of \$8,000 was appropriated towards procuring a site and erecting a Public Building in Port Hope, suitable for the local Post, Customs and other offices. On 7th February, 1883, four parcels of land, containing altogether 25,731 square feet, were purchased for the sum of \$4,600; and on 5th May, 1883, a contract was entered into with Mr. W. Toms for the erection of the building, the contract price being \$25,740. The building is now in course of construction at the corner of Queen and Hector streets. It is to be of brick, on stone foundations, the plinth course, string courses, window heads, &c., being of cut stone. The main building will be 80 by 46 feet, two stories high, with partial basement and an attic; and there will be a one-story wing in the rear, 16 by 24 feet. The angle at the intersection of the streets will be carried up as a square brick tower, 35 feet above the main cornice, and surmounted by a wooden belfry. Expenditure during the fiscal year, \$5,075.89.

PRESCOTT.

FORT WELLINGTON BARRACKS.

The sum of \$617.90 was expended in repairing the camponier passage under the ditch, which had fallen in.

INLAND REVENUE OFFICE.

Slight repairs were made at a cost of \$69.00.

SARNIA.

CATTLE QUARANTINE, POINT EDWARD.

At the Session of 1882 the sum of \$6,000 was appropriated for Cattle Quarantine Stations in Ontario; and at the Session of 1883 a further sum of \$1,500 was voted for the station at Port Edward, three miles north of Sarnia, at the entrance of the Ste. Claire River. On 1st April, 1882, a tract of land at this place, containing 82

acres, was leased from the Grand Trunk Railway, for a term of ten years, at a rental of \$100 per annum. Some wooden buildings which were on the land were purchased, and others have been built, it being stipulated that all buildings may be removed at the expiration of the lease. Expenditure, \$6,014.49.

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IMMIGRANT BUILDING.

At the Session of 1883 the sum of \$2,100 was voted for the construction of an Immigrant Building ; and on 28th May, 1883, a contract was entered into with Mr. C. H. Logan, the contract price being \$2,341. The building is situated about a quarter of a mile from Point Edward Railway station, from which a siding has been laid, and is of wood, 100 by 28 feet, with a kitchen and wash-room in the rear, 26 by 18 feet. Expenditure during the year, \$1,170.50.

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STRATFORD.

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PUBLIC BUILDING.

At the Session of 1882 a further sum of \$13,500 was voted towards the erection of this building for the accommodation of the Post, Customs and other offices. The building, which was fully described in last year's report, was nearly completed at the close of the fiscal year, and it was expected that it would be occupied this autumn. Expenditure during the year, \$22,177.98.

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ST. CATHARINES.

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PUBLIC BUILDING.

At the Session of 1882 a further sum of \$16,500 was granted for the construction of a building suitable for local Post, Customs and other offices, and the work was completed during the year. On the 19th December, 1882, a contract was entered into with Messrs. D. S. Keith & Co., for heating apparatus, which has been supplied ; and at the close of the fiscal year the fitting up and furnishing of the building was being proceeded with, so that it may be occupied this autumn. Expenditure during the year, \$20,667.23.

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ST. THOMAS.

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DRILL SHED.

At the Session of 1882 the sum of \$2,500 was granted for the purpose of moving this Drill Shed to a better location and repairing it ; and during the fiscal year the building was moved and repaired. Expenditure, \$2,844.86.

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PUBLIC BUILDING.

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At the Session of 1882 the sum of \$20,000 was appropriated towards the construction of a building suitable for Post, Customs and other offices, on the site on Talbot street purchased from the Trustees of the Presbyterian Church ; and on 22nd July, 1882, a contract for the erection of the building was entered into with Mr. H. Lindop, the contract price being \$38,850. The building will be of stone 64 by 62 feet, two stories high, with basement and attic ; and in the rear there will be a one story wing, 53 by 36 feet. The external walls will be ashlar with cut string courses, labels &c. ; and on the Talbot street front there will be a central projection surmounted by an ornamental stone dormer constructed to allow of a clock being placed when desired. Expenditure during the year, \$9,526.36.

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TORONTO.

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## ASSISTANT RECEIVER GENERAL'S OFFICE.

At the Session of 1883 the sum of \$1,600 was included in the vote for repairs generally, for the purpose of providing new doors for the vaults in this office ; and during the year the doors have been obtained. Expenditure \$1,475.00.

## CUSTOM HOUSE.

During the year the sum of \$280.11 was expended on repairs.

## DRILL SHED.

During the year some slight repairs were made. Expenditure, \$343.80.

## EXAMINING WAREHOUSE.

The sum of \$1,598.55 was expended on necessary repairs. At the close of the fiscal year plans were being prepared for an addition to the existing building, on the Government lot adjoining.

## IMMIGRANT SHED.

The sum of \$235.05 was expended on necessary repairs.

## INLAND REVENUE OFFICE.

Slight repairs were made, involving an expenditure of \$23.51.

## MILITARY BUILDINGS.

During the year the sum of \$1,682.72 was expended on repairs, principally to the old fort.

## POST OFFICE.

Slight repairs were made at a cost of \$242.85.

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**WINDSOR.**

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**POST OFFICE, &c.**

Some necessary repairs were made at a cost of \$337.45.

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**DISPUTED TERRITORY.**

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**PORT ARTHUR.**

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**IMMIGRANT BUILDING.**

At the Session of 1883 the sum of \$6,000 was voted for the erection of an Immigrant Building at this place; and on 28th May, 1883, a contract was entered into with Mr. C. H. Logan, the contract price being \$4,687. The main portion of the building will be two stories high, 100 by 28 feet, built of wood; and there will be in the rear two wash-rooms, each 10 by 9 feet, a dining-room 48 by 18 feet, and a kitchen 18 by 14 feet, all one story. Expenditure during the year, \$2,043.50.

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**RAT PORTAGE.**

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**JAIL.**

During the year some slight repairs were effected at an outlay of \$21.10.

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**PROVINCE OF MANITOBA.**

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**BRANDON.**

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**IMMIGRANT BUILDING.**

At the Session of 1883 a further sum of \$9,150 was voted to complete the Immigrant Building at Brandon, which was fully described in last year's report, and the building has been finished and occupied. Expenditure during the fiscal year, \$11,087.92.

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**EMERSON.**

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**IMMIGRANT BUILDING.**

The sum of \$205.05 has been expended during the year on necessary repairs to this building.

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QU'APPELLE.

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## IMMIGRANT BUILDING.

At the session of 1882 the sum of \$10,000 was voted for the construction of buildings for immigrants west of Brandon. Qu'Appelle was selected and a contract was entered into on 23rd October, 1882, with Mr. J. McCallum, for the erection of a two story wooden building, 100 by 29 feet, with kitchen and outbuildings for the sum of \$8,873. The building was completed, but was destroyed by fire on 13th May, 1883; and a contract was entered into on 10th July with M. C. H. Logan for a building to replace it, the contract price being \$5,839. Expenditure during fiscal year, \$10,853.40.

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STONY MOUNTAIN.

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## PENITENTIARY.

At the session of 1882 the sum of \$33,000 was voted for the completion of guards' cottages and other buildings mentioned in last year's report, all of which have been finished. At the close of the fiscal year plans, &c., were being prepared for an additional cell-wing, a central hall and a detached boiler house. Expenditure \$28,498 on construction and \$20 for repairs.

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WINNIPEG.

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## ARCHITECT'S OFFICE.

The sums of \$750 was spent for rent and repairs.

## ASSISTANT RECEIVER GENERAL'S OFFICE.

The sum of \$405.66 was spent for repairs.

## CUSTOM HOUSE.

The sum of \$260 was spent for necessary repairs.

## DOMINION LANDS OFFICE.

At the session of 1882 the sum of \$2,300 was voted for finishing the rooms in the attic of this building, furniture &c.; and during the year the improvements were carried out. Expenditure, \$2,286.75.

## FORT OSBORNE BARRACKS:

The sum of \$1,412.52 was spent on necessary repairs to the huts, which were falling into decay.

## IMMIGRANT BUILDING.

The sum of \$842.90 was spent on the completion of this building, and \$73.20 for some necessary repairs.

## LIEUT.-GOVERNOR'S RESIDENCE.

At the Session of 1882, a further sum of \$24,500 was voted towards the completion of this building, a full description of which will be found in the report for 1880-81. The work was almost finished at the close of the fiscal year. On 21st March, 1883, a contract was entered into with Mr. J. F. Bowles for stables, out-building, fencing, &c., the contract price being \$18,082 and arrangements were being made for heating, so that the building may be occupied this autumn. Expenditure during the year, \$31,797.12. The sum of \$2,000 was also paid for rent of the house occupied by the Lieut. Governor pending the completion of his residence.

## PARLIAMENT BUILDING.

At the Session of 1882 a further sum of \$30,000 was voted towards the construction of this building, a full description of which will be found in the report for 1880-81. Messrs. J. & P. Lyons & Co., the contractors, having failed in their contract, it became necessary to re-let the unfinished portion, and, on 26th May, 1883 a contract was entered into with Messrs. Galley, Moberly and Soucisse for the completion of the work, the contract price being \$63,985. The progress made to the end of the year had been very satisfactory. Expenditure during the fiscal year, \$22,999.66.

## POST OFFICE (OLD).

At the Session of 1883 the sum of \$5,500 was voted to carry on the alterations and additions referred to in last year's report, which were completed. Expenditure, \$5,398.79.

## POST OFFICE (NEW.)

The old Post Office being inadequate to the growing business requirements of the city, it was decided to erect a new and larger building, and the sum of \$50,000 was voted for this purpose at the Session of 1883, the new building to be erected on the site of the old one. As no suitable building for use as a Post Office during the construction of the new office could be obtained on what was considered reasonable terms, it was decided to erect a temporary office on a lot, the property of the Government, situated between the Custom House and Land Office, on Main street; and, on 14th April 1883, a contract was entered into with Mr. C. H. Logan for the erection of a wooden building 97 by 54 feet, the front portion being two stories and the rear one story, the contract price being \$6,131. At the close of the year plans, &c., for the new Post Office were being prepared. Expenditure during the year \$5,959.88.

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## NORTH WEST TERRITORIES.

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### PUBLIC BUILDINGS GENERALLY.

At the Session of 1882 the sum of \$5,000 was voted for Public Buildings generally in the North-West, and during the year \$1,482.14 has been expended.

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### REGINA.

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#### PUBLIC BUILDINGS.

At the Session of 1882 the sum of \$20,000 was voted for Public Buildings at Regina. During the year temporary wooden buildings for the accommodation of the Lieutenant-Governor have been erected; and on 28th June, 1883, a contract was entered into with Mr. M. P. Zindord for additional buildings, the contract price being \$6,050. Expenditure during the year \$6,330.13.

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## PROVINCE OF BRITISH COLUMBIA.

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### NANAIMO.

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#### PUBLIC BUILDING.

At the Session of 1882 the sum of \$10,000 was voted towards the erection at Nanaimo of a building suitable for a Post Office, Custom House, &c. On 25th July, 1882, a site was purchased from the Vancouver Coal and Mining Company for \$1,000, and on 18th September, 1882, a contract was entered into with Messrs. Smith & Clark for the construction of the building, the contract price being \$23,250. The building will be of stone, 48 by 24 feet, with a staircase wing 12 by 24 feet; two stories high, with basement, and floors and roofs to be of wood. Work was being vigorously pushed at the end of the fiscal year, and the contractors expected to finish their contract by October. Expenditure during the fiscal year, \$10,037.38.

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### NEW WESTMINSTER.

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#### PENITENTIARY.

A blacksmith's forge and carpenter's bench has been constructed in the workshops, iron gratings put to all the windows, closets put in, and other necessary work done. Expenditure, \$2,031.7

## POST OFFICE, &amp;c.

At the Session of 1882, a further sum of \$11,500 was voted towards the erection of this building, which was described in last year's report. The contract has been completed, and at the close of the year arrangements were being made for fittings and furniture. Expenditure during year, \$14,451.75.

## PUBLIC BUILDINGS.

During the fiscal year the sum of \$171.25 has been spent on necessary repairs.

## VICTORIA.

## MILITARY WORKS.

The repairs to Finlayson and Macauley Point Batteries, mentioned in last year's report as being in progress, were completed at a cost of \$748.87.

## POST OFFICE.

Necessary repairs to the amount of \$217.92 were executed during the fiscal year.

## QUARANTINE STATION.

At the Session of 1882 the sum of \$5,000 was voted for a Quarantine Station, but up to the close of the fiscal year a suitable site had not been obtained and no expenditure had taken place.

## CIVIL SERVICE EXAMINATIONS.

During the fiscal year examinations of candidates for admission to the Civil Service were held in various cities of the Dominion, as required by the Civil Service Act of 1882, and the following small expenses, incurred in connection with such examinations, were charged to rents and repairs:—

Kingston .....	\$42 51
Montreal .....	43 00
Quebec.....	3 00
St. John, N.B.....	2 35
Winnipeg .....	15 00

Total expenditure.....\$106 86

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### HEATING DOMINION BUILDINGS.

At the Session of 1883 in the supplementary vote of \$39,610 for repairs, &c., there was included the sum of \$11,000 for heating Dominion Public Buildings, which had hitherto been paid through the respective Departments by which the buildings are occupied. The expenditure on this account has been as follows, by Provinces:—

Nova Scotia.....	\$ 231 34
Prince Edward Island.....	202 72
New Brunswick.....	1,905 86
Quebec .....	4,676 69
Ontario .....	2,751 07
Manitoba.....	880 00
British Columbia.....	92 00

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Total expenditure... \$10,739 68

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### SALARIES OF ENGINEERS, FIREMEN, ETC.

At the Session of 1882 there was included in the general vote of \$268,300, the sum of \$13,000 for the payment of the salaries of Engineers, Firemen and Caretakers in Dominion Public Buildings throughout the Dominion, which salaries had previously been paid by the different Departments for which the services were performed. The expenditure on account of these salaries has been as follows, by Provinces:—

Nova Scotia.....	\$ 871 20
Prince Edward Island.....	553 06
New Brunswick.....	3,217 29
Quebec.....	3,515 92
Ontario .....	6,629 55

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Total expenditure..... \$14,787 02

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### HARBOURS AND RIVERS.

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At the Session of 1882 the sum of \$753,800 was voted for the improvement of harbours and rivers throughout the Dominion; and at the Session of 1883 a further

sum of \$19,289.19 was appropriated, making a total of \$773,098.19. The following is a statement of the appropriations and expenditures by Provinces:—

	Appropriation.	Expenditure.
Nova Scotia.....	\$109,950 00	\$81,657 22
Prince Edward Island.....	33,000 00	33,164 21
New Brunswick.....	61,500 00	63,760 19
Maritime Provinces generally .....	10,000 00	2,525 49
Quebec .....	180,600 00	164,990 62
Ontario.....	305,734 79	249,925 86
Manitoba .....	24,000 00	13,654 07
North-West Territories.....	20,000 00	5,823 23
British Columbia.....	7,304 40	3,069 74
Harbours and Rivers generally.....	16,000 00	6,160 40
Total.....	<u>\$773,089 19</u>	<u>\$624,731 03</u>

## PROVINCE OF NOVA SCOTIA.

### ANNAPOLIS.

At the Session of 1882 the sum of \$15,000 was appropriated as a bonus to the Acadia Steamship Company on account of their building a large wharf or pier to accommodate ocean steamers; and during the fiscal year the money was paid to the Company.

### ARISAIG.

At the Session of 1882 the sum of \$1,500 was voted for the purpose of repairing the breakwater at this place, built by the Nova Scotia Government some years ago, and damaged by ice in November, 1881. The vote was expended and the damage made good.

### BEAR RIVER.

The sum of \$79.25 was expended in removing some of the boulders and other obstructions which impeded the navigation of the river to the village of Bear River.

### BENACADIE POND.

At the Session of 1882 the further sum of \$3,000 was granted to continue the protection work on the east side of the proposed channel into this pond; and the work has been carried on during the fiscal year. Expenditure, \$4,029.70.

### BROOKLYN.

During the year necessary repairs to the breakwater were made. Expenditure, \$2,727.02.

### CAPE ST. MARY.

At the Session of 1882 the further sum of \$2,500 was granted to continue the repairs mentioned in last year's report as being made; and during the year the work has been completed. Expenditure, \$2,499.17.

## CHEVERIE.

At the Session of 1882 the sum of \$5,000 was appropriated for the extension of the wharf at this place, which was commenced by the inhabitants some years ago, and continued by the Department in 1873-74. During the year an addition of 150 feet was built, and provision made for the construction of further works, for which an appropriation has been made. Expenditure, \$4,997.97.

## COFFIN ISLAND.

At the Session of 1882 the sum of \$2,100 was appropriated for the purpose of protecting a low portion of the western beach of a small harbour in the centre of the island; and during the year this was done by the construction of a "spur" composed of large-sized stones, extending a distance of 250 feet. Expenditure, \$2,099.95.

## COW BAY.

At the Session of 1882 the sum of \$3,000 was appropriated for repairs to the breakwater at this place; which amount was expended in placing horizontal and vertical fenders on the inner face, over a length of 800 feet, in repairing the covering and in making a new roadway. Expenditure, \$3,000.00.

## DIGBY.

At the Session of 1882 the sum of \$3,500 was voted for the repair of the pier at this place, which had been greatly damaged by sea-worms; and at the Session of 1883 a further sum of \$500 was voted for the same purpose. On the 8th November, 1882, a contract was entered into with Mr. G. S. Mayes for the sum of \$3,708, and during the fiscal year the work was carried out. Expenditure, \$4,043.46.

## EAGLE HEAD.

At the Session of 1882 the sum of \$2,500 was appropriated for the purpose of extending and repairing a stone breakwater, 275 feet in length, which was built at this place some years ago by the Nova Scotia Government. The old work has been repaired and a further length of 125 feet built. Expenditure, \$2,499.25.

## EAST BAY.

At the Session of 1882 the sum of \$1,800 was appropriated for the purpose of extending a pier at this place, which had been built in 1881 by the inhabitants, assisted by the Local Government, for the accommodation of the steamer carrying the mails between the terminus of the Eastern Extension Railway at the Gut of Canso, and Sydney, C.B. During the present year the pier was extended 70 feet into deeper water. Expenditure, \$1,798.92.

## GREAT RIVER VILLAGE.

At the Session of 1882 the sum of \$8,000 was voted towards the work of opening a new channel, 1,350 feet in length, on account of the circuitous course of the

river near its mouth. The local authorities agreed to furnish \$4,000, and the work was being proceeded with at the close of the present year, but no expenditure had taken place.

#### HAMPTON.

The works referred to in last year's report were finished. Expenditure, \$727.63.

#### INDIAN HARBOUR.

At the Session of 1882 the sum of \$1,000 was voted towards the construction of a shelter for fishing boats, the local authorities to furnish an equal amount. Up to the close of the fiscal year no action had been taken, and no expenditure made.

#### JORDAN BAY.

At the Session of 1882 the sum of \$5,000 was appropriated for repairs to the breakwater built in 1875-76, near the mouth of the Jordan River, which had been greatly damaged by settlement and storms. On 31st October, 1882, a contract was entered into with Mr. N. R. Freeman, for the sum of \$4,940, and during the year the works have been carried out. Expenditure, \$5,046.12.

#### LIVERPOOL.

At the Session of 1882 the sum of \$5,000 was appropriated towards the construction of a breakwater 500 feet long, on the west side of Liverpool Bay, about 2,000 feet below Lighthouse Point, but up to the close of the fiscal year no work had been done.

#### MABOU.

At the Session of 1882 the further sum of \$4,000 was appropriated to complete the work of raising and repairing the cribwork protection wall on the southern side of the channel, opened in 1873-74; and during the year the work was finished. Expenditure, \$3,394.64.

#### MAIN-A-DIEU.

At the Session of 1882 a further sum of \$1,000 was voted to complete the breakwater then being constructed under contract at this place; and in August, 1882, the work was finished. Expenditure during fiscal year, \$2,858.79.

#### METEGHAN COVE.

During the fiscal year the breakwater at this place was re-balasted, close-fendered and otherwise repaired. Expenditure, \$500.00.

#### METEGHAN RIVER.

At the Session of 1882 the further sum of \$3,000 was voted to complete the repairs to the harbour constructed at the mouth of the Meteghan River some years ago by the Local Government; and during the year the southern pier has been extended 80 feet, the northern pier repaired and the channel cleared of boulders. Expenditure, \$3,000.00.

## NEW HARBOUR.

At the Session of 1882 the sum of \$3,000 was voted for the purpose of assisting in the construction of a stone breakwater for the protection of fishing boats, the residents of the locality and the County Council to assist with labor and money. Up to the close of the fiscal year work had not been commenced, and no expenditure had taken place.

## NORTH SYDNEY.

At the Session of 1882 a further sum of \$3,000 was voted to continue the work of protecting the harbour from sand being washed into it, which was commenced in 1881 at the joint expense of the Harbour Commissioners and the Dominion. During the year the works were extended 150 feet, the total length now amounting to 254 feet. Expenditure \$2,999.52.

## PARKER'S COVE.

At the Session of 1882 the sum of \$1,000 was voted towards the construction of a pier at this place to serve as a shelter for fishing boats, the inhabitants of the locality to furnish an equal amount. Up to the close of the fiscal year no work had been done, and no expenditure had taken place.

## PARRSBORO' PIER.

During the fiscal year the sum of \$147.43 was expended in repairing portions of the roadway and slip of the public pier, and in renewing the fenders, which had been damaged by floating ice.

## PARRSBORO', OR PARTRIDGE ISLAND RIVER.

At the Session of 1882 the further sum of \$2,500 was appropriated for improving the channel of Partridge Island River, and during the year the amount was expended for that purpose.

## PETITE RIVIÈRE.

At the Session of 1882 the sum of \$5,000 was voted towards the construction of a breakwater at Cherry Point, but up to the close of the fiscal year no expenditure had been made.

## PICKETT'S PIER.

At the Session of 1882 the sum of \$500 was voted for the repair of this pier, which was built some years ago at the joint expense of the Local Government and the residents of the locality. The pier was repaired by the Dominion Government in 1877-78, and during the last fiscal year it was further repaired, and the whole pier and the approach thereto raised above the level of high water spring tides. Expenditure, \$1,200.00.

## PICTOU ISLAND.

At the Session of 1882 the further sum of \$1,250 was voted to complete the repairs to the landing pier built by the Government of Nova Scotia, at the western

end of the island, and to construct a small landing pier 100 feet in length, at the eastern end of the island. During the year these works were carried out. Expenditure, \$1,246.92.

## PORT HOOD.

At the Session of 1882 the sum of \$4,000 was voted for the purpose of repairing the damage done to the pier at this place by storms and sea-worms, referred to in last year's report; and during the year the repairs have been made. Expenditure, \$3,996.65.

## PORT LORNE.

At the Session of 1882 the sum of \$5,000 was granted for the purpose of constructing an addition of 100 feet to the pier at this place, which was built some years ago by the residents of the locality, assisted by the Local Government, and extended 67 feet in 1872-3 by the Dominion Government. On 1st February, 1883, a contract was entered into with Mr. G. S. Mayes for the extension, the contract price being \$4,940; and at the close of the fiscal year about one-third of the work had been done. Expenditure, \$1,028.54.

## RAGGED POND.

During the year an expenditure of \$253.18 was made for engineering expenses.

## SAW PIT.

During the year the sum of \$146.04 has been spent on necessary repairs to a small wharf built prior to Confederation by the Provincial Government.

## SILVER POINT.

The sum of \$99.47 was expended in repairing the "Warping Pier" on the northern side of Hiltz Narrows, and in the removal of rock from the channel of the "Run."

## SOUTH INGONISH.

At the Session of 1882 the sum of \$8,000 was voted towards repairing the breakwater at this place; and on 16th April, 1883, a contract was entered into with Messrs. McPherson and McKinnon for the sum of \$16,450. Up to the close of the fiscal year the expenditure had been only \$93.02.

## ST. MARY'S RIVER.

At the Session of 1882 the sum of \$2,000 was voted for the improvement of the channel of this river, down which a large amount of lumber is annually floated. The channel was obstructed by rocks and boulders, and during the fiscal year these have been removed from the main river between Sherbrooke and Wallace Bridge, and portions of the east and west branches, the results being very satisfactory. Expenditure, \$1,997.67.

## SUMMERVILLE.

The small breakwater built in 1878-79 was strengthened and repaired during the last fiscal year. Expenditure, \$599.68.

## TROUT COVE.

The sum of \$249.17 was spent in necessary repairs to the wharf built by the residents of the locality, assisted by the Provincial Government, prior to Confederation, and since extended by the Dominion Government.

## WESTPORT.

At the Session of 1882 the sum of \$2,000 was voted towards the purchase and extension of a pier at this place, but up to the close of the fiscal year no expenditure had been made.

## WHITE POINT.

At the Session of 1882 the sum of \$2,000 was voted for repairs to the pier at this place, which was built many years ago by the residents of the locality, assisted by the Provincial Government, and extended in 1877-78 by the Dominion Government. During the fiscal year the outer portion of the old work, which had been completely demolished by a storm, was rebuilt, and other parts of the work repaired. Expenditure, \$1,997.98.

## YARMOUTH.

At the Session of 1882 the sum of \$3,300 was voted for the purpose of repairing the sea-wall built in 1872-73, from Stony Beach Point to Cape Fourchu, for the protection of the lower portions of the harbour; and during the fiscal year portions of this wall which had decayed were re-built, and the seaward face of the whole work close-fendered. Expenditure, \$3,299.28.

## PROVINCE OF PRINCE EDWARD ISLAND.

## CAMPBELL'S COVE.

At the Session of 1882 the further sum of \$4,000 was voted towards the completion of the breakwater mentioned in last year's report; and during the year the work has been finished. Expenditure, \$5,020.04.

## CASCUMPEC.

At the Session of 1882 the sum of \$5,000 was voted towards opening a channel 100 feet wide to 14 feet in depth, through the inner bar of sandstone over which there is now only 10 to 11 feet depth at low water. Up to the close of the fiscal year the only expenditure which had been made was \$190.82 for survey expenses.

## COLVILLE BAY (SOURIS EAST.)

During the year the repairs mentioned in last report as necessary, have been made at an expenditure of \$3,647.71.

## MALPEQUE.

The planking on the outer end of the breakwater, which had been removed by ice, has been replaced. Expenditure, \$59.95.

## MIMINEGASH.

At the Session of 1882 the sum of \$1,500 was voted for the completion of the works at the entrance of Big Miminegash Pond. Expenditure, \$1,437.25.

## RUSTICO HARBOUR.

At the Session of 1882 the further sum of \$8,500 was granted for the continuance of the works referred to in last year's report as being under contract; and at the close of the year about seven-eighths of the work was completed. Expenditure during the fiscal year, \$9,677.30.

## SOUTH RIVER (MURRAY HARBOUR.)

At the Session of 1882 the sum of \$5,000 was granted for the purpose of continuing the work of straightening the channel and deepening it to 8 feet at extreme low water. The dredge "Prince Edward" worked here from 1st July to 26th October, 1882, removing 39,015 cubic yards of sand and mud. Expenditure, \$5,927.94.

## SOUTH-WEST RIVER (NEW LONDON).

At the Session of 1882 the sum of \$5,000 was granted for the purpose of constructing a breakwater 460 feet in length, on the western side of the entrance to the harbour of New London, and a dam 1,600 feet in length at Campbell's Point, to confine and increase the force of the current of the South-West River, and thus tend to deepen the shoal at the mouth of the harbour. On the 8th February, 1883, a contract was entered into with Mr. Thomas Reid, for the sum of \$3,873, and at the close of the fiscal year about two-thirds of the projected works had been completed. Expenditure, \$2,511.42.

## ST. PETER'S BAY.

At the Session of 1882 the sum of \$6,000 was granted for the purpose of constructing works to contract the channel at the entrance to the harbour, so as to increase the force of the current on the outer bar. On the 10th February, 1883, a contract was entered into with Mr. John D. Sinnott, for the sum of \$3,930, and at the close of the fiscal year about five-eighths of the work had been completed. Expenditure, \$1,509.72.

## TIGNISH.

The works mentioned in last year's report as being in progress have been completed. Expenditure during the fiscal year, \$4,110.00.

## WOOD ISLANDS.

At the Session of 1882 the sum of \$3,000 was voted for the improvement of Victoria Harbour, Wood Islands; and the work of repairing and raising the break-

water on the eastern side of the harbour, built some years ago by the Provincial Government, was commenced, but no expenditure was made until after the close of the fiscal year.

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## PROVINCE OF NEW BRUNSWICK.

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### CAMPO-BELLO.

At the Session of 1882 the sum of \$500 was voted for the purpose of repairing the small breakwater at Wilson's Beach, Campo-Bello Island, built during 1873-74 and 1877-78 for the protection of fishing boats. During the fiscal year the structure was raised, re-ballasted, and the fenders which had been carried away replaced. Expenditure, \$500.00.

### CARAQUETTE.

At the Session of 1882 the sum of \$4,000 was voted for the construction of an arm, 100 feet in length, to the wharf, 1,150 feet long, which was built by the Provincial Government, so as to form a small harbour. On 6th January, 1883, a contract was entered into with Mr. R. Blackall for the sum of \$3,410, and at the close of the fiscal year the work was being proceeded with. Expenditure, \$54.34.

### COCAGNE.

The landing pier on the north side of the harbour, near the railway bridge, mentioned in last year's report as being in course of construction, has been completed. Expenditure during the fiscal year, \$4,074.78.

### COURTENAY BAY.

At the Session of 1882 the sum of \$500 was appropriated for the purpose of marking the channel of the Marsh Creek; and during the fiscal year, clumps of piles have been placed at points in the channel to define it during high water. Expenditure, \$500.00.

### MADAWASKA RIVER.

At the Session of 1882 the sum of \$1,000 was appropriated for the improvement of the tow-path and channel of the river up to Lake Témiscouata; and during the fiscal year the sum of \$600 was expended for this purpose.

### MIRAMICHI.

At the Session of 1882 the sum of \$3,000 was voted for the construction of ballast wharves in the Miramichi River; but up to the close of the fiscal year no work had been done, and no expenditure had taken place.

## POINTE DU CHÊNE (SHÉDIAC).

The work of extending the breakwater for the protection of the railway wharf, referred to in last report, was completed in September, 1882. Expenditure during the fiscal year, \$1,853.00.

## QUACO.

At the Session of 1882 a further sum of \$6,000 was voted for the completion of the breakwater on the western side of the harbour, mentioned in last year's report; and during the year the work was finished. The expenditure during the fiscal year was \$12,460.00.

## RICHIBUCTO.

Owing to a change in the set of the current, the sand beach at the head of the breakwater constructed in 1872-75 was threatened with destruction, to prevent which protection works were built during the last fiscal year, at an expenditure of \$999.55.

## ROCHER BAY.

At the Session of 1882 the sum of \$1,000 was appropriated towards the extension of the breakwater at this place. Up to the close of the fiscal year work had not been commenced, and only a small expenditure of \$4.92 had been made.

## SHIPPAGAN.

At the Session of 1882 the sum of \$4,000 was voted for the purpose of extending and repairing the breakwater at this place. During the year it was extended seaward a distance of 120 feet, and shoreward 100 feet, to close a gap, and raised over the old portion. The dam across the East Gully having settled over its whole length, was raised in those parts deemed to be unsafe. Expenditure, \$3,507.63.

## ST. ANDREW'S.

The "Beacon Block," mentioned in last year's report as being under construction, has been completed. Expenditure during the fiscal year, \$1,930.00.

## ST. JOHN.

At the Session of 1882 the further sum of \$35,000 was voted to continue the work of reconstructing the superstructure of the breakwater at Negro Point, carried away during a gale in January, 1879. The work was carried on during the year, and at its close about two-fifths of the proposed work had been finished. Expenditure during the fiscal year, \$30,735.26.

## ST. JOHN RIVER.

At the Session of 1882 the sum of \$2,000 was voted for the purpose of improving the St. John River between Rivière des Chutes and Bear Island; and during the year this part of the river was improved by the removal of boulders and stone at Dibblee's

Rapids, Bull's Island, Meductic Bar, Eel River, Nackawic, Davidson's Bar, and Bear Island. Improvements were also made to the tow-path between the mouth of the St. Francis and Grand Falls; rocks and boulders were removed at the mouth of the St. Francis, &c. Expenditure, \$3,458.87. The sum of \$793.83 was also expended for strengthening the sheer-dam at Oromocto, and protecting the head of Thatch Island.

#### TOBIQUE.

At the Session of 1882 the sum of \$2,000 was voted for the improvement of the Tobique River and the River St. John, above Grand Falls. During the year boulders and small rocks were removed from the channel at Three-Brooks-Bar, Ox Island, Plaister Rock and Wapskohagan, and improvements by blasting were made at the Narrows, on the reef at Grand Bar, on Craig's Reef, at Red Rapids, and at the Upper and Lower Pitches. Expenditure, \$788.41.

#### TYNEMOUTH.

At the Session of 1882 the sum of \$1,500 was appropriated for the purpose of constructing a breakwater on the western side of the creek, similar to the one built on the eastern side in 1874-75; and during the fiscal year the work was carried out. Expenditure, \$1,500.00.

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### MARITIME PROVINCES GENERALLY.

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At the Session of 1882 the sum of \$10,000 was voted for the repairs and maintenance of harbours and rivers generally in the Maritime Provinces; and during the fiscal year the sum of \$2,525.49 was expended.

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### PROVINCE OF QUEBEC.

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#### ANSE DU PORTAGE.

The landing slip to facilitate the transportation of the mails across the Saguenay, during the winter, to and from Tadoussac, mentioned in last year's report as being under construction, has been completed. Expenditure, \$780.99.

#### ANSE ST. JEAN.

At the Session of 1882 the sum of \$2,200 was voted for the completion of the pier at this place. During the year the work has been finished, a connection made with the public road, and a shed for the accommodation of freight and passengers constructed. Expenditure, \$1,443.62.

## BAGOTVILLE.

At the Session of 1882 the sum of \$3,500 was voted towards the completion of the pier at this place; and at the Session of 1883 a further sum of \$3,000 was granted. During the year it was found necessary to support the outer end of the pier, and a block of crib-work was sunk close to it and filled with ballast. It will be necessary to raise this pier three feet over its whole length, as it is covered during the time of spring tides. Expenditure during the fiscal year, \$4,307.40.

## BAIE ST. PAUL.

At the Session of 1882 a further sum of \$12,000 was granted towards the construction of a pier at Point Rouge, Cap aux Corbeaux, the local authorities furnishing \$3,000. During the year a length of 571 feet was completed, and preparations have been made to proceed with a further length of 230 feet, to finish the pier as originally designed. Expenditure during the fiscal year, \$13,334.85, making a total outlay of \$18,746.55 up to 1st July, 1883.

## CAP A L'AIGLE.

A small freight shed has been built on the wharf at this place at a cost of \$250.00.

## CARLETON.

At the Session of 1882 a further sum of \$2,500 was voted towards building this pier; and at the Session of 1883 an additional grant of \$200 was made to complete it. On the 13th of January, 1883, the Government of the Province of Quebec made a free grant to the Government of Canada of one acre, fourteen perches of land, consisting of N.  $\frac{1}{2}$  of beach Lot No. 26 and S.  $\frac{1}{2}$  of lot No. 27, Township of Carleton, as a site for the pier. The pier, so far as projected, was completed during the year, but to make it thoroughly useful, it will require to be extended 75 feet. Expenditure during the fiscal year, \$2,394.00.

## CEDARS.

Painting to the amount of \$9.85 was done to the store-house on the pier at this place.

## CHENAL DU MOINE.

At the Session of 1882 the sum of \$2,000 was granted for the purpose of constructing two additional protective piers against the ice shoves, which occur each year along the southern shore on this portion of the St. Lawrence; and on the 9th of June, 1883, a contract was entered into with Mr. Elie Normand for their construction. Preparations were being made at the close of the fiscal year for commencing the work. Expenditure, \$36.93.

## CHICOUTIMI.

The sum of \$150.85 was expended on necessary repairs during the year.

## ETANG DU NORD.

At the Session of 1882 a further sum of \$5,000 was voted to continue the breakwater at this place ; and at the Session of 1883 an additional amount of \$4,500 was granted. A further length of 175 feet of the breakwater was commenced, and at the close of the year the prospects were that it would be completed before the winter set in. In September, 1882, a portion of the work done during the previous summer was damaged, and in repairing it a change, dictated by experience, was made in the shape of the portion above water, which it is believed will be the means of reducing if not preventing damage in the future. Expenditure during the fiscal year, \$11,518.91, making a total outlay of \$24,431.54 up to July 1st, 1883.

## GROSSE ILE.

At the Session of 1882 a further sum of \$1,500 was voted to continue the work of raising and repairing the eastern pier in connection with the Quarantine establishment at this place ; and during the year the repairs have been completed, and a new roadway formed above high-water mark, as the old roadway was always covered at high tide. Expenditure during the fiscal year, \$1,718.27.

## HARBOURS GENERALLY.

At the Session of 1882 the sum of \$10,000 was voted for general repairs and improvements to harbours and rivers in Quebec ; and during the fiscal year the sum of \$6,891.39 was expended.

## ILE AUX COUDRES.

For the accommodation of freight and passengers a shed has been built on the wharf lately constructed by the Government, the expenditure being \$250.00.

## ILE AUX GRUES.

At the Session of 1882 the further sum of \$8,000 was granted towards completing the pier projecting from the lighthouse block in Point aux Pins Harbour, which was referred to in the last report ; and the work has been finished. Expenditure during the fiscal year, \$9,079.99.

## LES ESCUREUILS.

The sum of \$434.45 was expended on necessary repairs to the pier at this place.

## LES EBOULEMENTS.

A shed for passengers and freight was erected on the wharf at this place, at an expenditure of \$250.00.

## L'ISLET.

Some small but needed repairs were made to the pier at this place, at a cost of \$124.03.

## MALBAIE.

A moveable slip or landing has been constructed on the wharf at Pointe-à-Pic, to accommodate the landing of passengers and freight at all times of the tide. Expenditure, \$448.06.

## MATANE.

At the Session of 1882 the sum of \$3,500 was voted to continue the repairs to the pier built at this place in 1879, and which had been damaged by ice. Besides repairing the unprotected corners of the crib-work, a row of close sheet piles has been driven on the eastern side for the purpose of arresting and retaining the sand swept down by the current of the St. Lawrence, and the object desired has been attained. Expenditure during the fiscal year, \$4,159.36.

## MONTREAL.

An expenditure of \$210 was made in connection with an examination of the harbour of Montreal.

## NEW CARLISLE.

At the Session of 1882 the further sum of \$5,000 was granted towards this pier, the Municipality having voted \$1,000; and at the Session of 1883, an additional amount of \$4,000 was appropriated. During the fiscal year a further length of the pier was constructed, making a total of 300 feet. As designed, there was to have been a depth of 14 feet at low water at the outer end of the pier, but during storms in November and December, 1882, scouring of the bottom took place, and there is now a depth of 22 feet instead of 14. As the work had to be built up as it settled to this new depth, it has become necessary to devise means to more effectually protect it from the effects of storms and ice. Expenditure during the fiscal year, \$5,973.35.

## PIOPOLIS.

At the Session of 1882 the sum of \$4,000 was voted for piers, &c, in Lake Megantic; and at the Session of 1883, a further grant of \$1,500 was made to complete the work. With part of this vote a small wharf has been commenced at Piopolis. Expenditure during the fiscal year, \$721.60.

## PORT AU SAUMON.

The sum of \$462.08 has been expended in the removal of boulders obstructing navigation: and the improvement is recognized by the masters of vessels frequenting the port.

## PHILLIPSBURGH.

At the Session of 1882 the sum of \$4,000 was granted for Phillipsburgh Harbour, Missiquoi Bay, Lake Champlain, the locality to furnish a like amount. Up to the close of the fiscal year only a small expenditure of \$185.75 for survey expenses had been made.

## QUEBEC.

At the Session of 1882 the sum of \$3,000 was voted for repairing the wharves which form the eastern and western boundaries of the Marine Hospital grounds, and which having been built many years ago, had become much decayed. During the fiscal year the sum of \$3,298.77 was expended in renewing a portion of the east wharf.

## RIVIÈRE BLANCHE.

During the fiscal year work was commenced in connecting with the shore the isolated block built in 1876, and enlarged in 1879. Expenditure, \$2,156.68.

## RIVIÈRE DU LIÈVRE.

At the Session of 1882 the sum of \$5,000 was appropriated for the purpose of improving the navigation of this river, and also to facilitate the descent of timber. Expenditure during fiscal year, \$867.16.

## RIVIÈRE DU LOUP (EN BAS).

At the Session of 1882 the sum of \$1,000 was voted for the completion of the repairs to the pier at this place; and the head of the pier has been re-sheathed from low water mark upwards, and a moveable slip completed. Expenditure during the fiscal year, \$1,040.60.

## RIVIÈRE NICOLET.

At the Session of 1882 the sum of \$20,000 was voted towards the establishment of a harbour of refuge, for which a contract was let, as mentioned in last year's report. On account of the high water in the St. Lawrence, only dredging had been done by the contractors up to the close of the fiscal year. Expenditure, \$10,474.12.

## RIVIÈRE OUELLE.

During the fiscal year the central portion of the pier at Pointe aux Orignaux was raised to the same height as the portion of the shore end undertaken in 1881. Expenditure, \$2,500.02.

## RIVER OTTAWA.

At the Session of 1882 the sum of \$1,000 was voted for dredging opposite Calumet; but up to the close of the fiscal year work had not been commenced and no expenditure had taken place. During the season dredging was done on the sand-bar between Bristol and Portage du Fort, and the work so far completed had a beneficial effect on navigation. Expenditure, \$2,945.05.

## RIVER RICHELIEU.

The dredging mentioned in last year's report was finished. Expenditure, \$1,200.80.

## RIVER SAGUENAY.

At the Session of 1882 the sum of \$5,000 was granted to continue the work of improving the navigation of the River Saguenay, below Chicoutimi; and during the

year 890 rocks and boulders have been taken up, and 3,770 cubic yards of earth and stones removed with the special apparatus mentioned in last year's report, and which has been found to work very well. Expenditure during the fiscal year, \$4,990.32.

At the Session of 1882 the sum of \$2,000 was voted for the widening of the outlet of Lake St. John, into the Saguenay, "La Grande Décharge;" and during the year the work has been carried on. The object of this work is to increase the off-take capacity of this channel, and thus permit a quicker subsidence of the waters of Lake St. John at times of freshet, at which periods it rises from 15 to 20 feet, and submerges large areas of arable land. The enlargement will not tend to lower the normal level of the lake. Expenditure during the fiscal year, \$2,128.22.

#### RIVER ST. DAVID.

At the Session of 1882 the sum of \$1,000 was appropriated for building two ice piers, and during the fiscal year the amount was expended for that purpose.

#### RIVER ST. FRANCIS.

Work to facilitate the descent of timber has been done at Rapide Blanc, Rapide des Pêches and Rapide Bord du Basin, boulders and rock being removed. At Hemming's Falls a channel about 500 feet long has been opened and a stone dam 40 feet in length built. Further improvements are necessary. Expenditure during the fiscal year, \$1,327.37.

#### RIVER ST. LAWRENCE.

At the Session of 1882 the sum of \$10,000 was appropriated for removing chains, boulders, &c., from the river; but up to the close of the fiscal year only \$277.46 had been expended.

The sum of \$7,500 was voted at the Session of 1882, towards making a hydrographic survey of the River St. Lawrence; and during the fiscal year the survey was commenced. Expenditure, \$7,518.07.

The work of improving the channel between Montreal and Lake St. Francis, mentioned in last year's report, was finished on 16th September, 1882, the new channel at Bacot Hayes Shoal, with 8 feet depth at low water, being completed. Expenditure, \$1,223.85.

#### RIVER YAMASKA.

At the Session of 1882 a further sum of \$15,000 was voted to continue the construction of the lift lock and dam at Isle à Cardin, for which a contract was entered into on 27th August, 1881, with Messrs. Brecken, Gaherty & Davis for the sum of \$32,229. This lock and dam will render the river navigable for 21 miles from its mouth to Rapide de la Grosse Roche. At the close of the working season of 1882, the lock bottom had been finished, and the walls carried up to a height of 6 feet, the breast work built, the wing piers at both ends of the lock constructed to about 4 feet above

the walls, and filled with stone, and the puddling and earth filling brought up to the level of the walls. Owing to the high water in the St. Lawrence, work had not been resumed on 30th June. Expenditure during the fiscal year, \$17,693.20.

## STE. AGNES.

At the Session of 1882 the sum of \$4,000 was voted for the construction of piers and improvement of the navigation of Lake Megantic; and at the Session of 1883 a further grant of \$1,500 was made. Part of this appropriation was used to build a wharf at Ste. Agnes. Expenditure during the fiscal year, \$4,649.30.

## ST. FRANÇOIS.

At the Session of 1882 the sum of \$4,000 was voted towards the construction of a landing pier at St. François, Ile d'Orléans; and during the fiscal year construction was commenced, and a length of 205 feet completed. Expenditure, \$4,047.00.

## ST. JEAN PORT JOLI.

At the Session of 1882 the sum of \$4,700 was appropriated for the purpose of constructing an additional length to the pier at this place, to obtain a greater depth of water; but up to the close of the fiscal year work had not been commenced and no expenditure had taken place.

## ST. MICHEL.

In September and October, 1882, the sum of \$262.66 was expended in removing some boulders lying off the end of the pier at this place.

## ST. THOMAS DE MONTMAGNY.

At the Session of 1882 the sum of \$500 was appropriated for use on the pier at this place; and during the year the amount was expended in ballasting the pier, and placing a couple of ladders for the convenience of those who have to land from boats at low water. Expenditure \$500.00.

## ST. TIMOTHÉE.

During the fiscal year a landing pier was constructed at this place, consisting of a block 100 by 24 feet, having from  $6\frac{1}{2}$  to  $7\frac{1}{2}$  feet depth of water along its front, and a roadway to the shore 237 feet in length and 20 feet wide. Expenditure, \$1,841.46.

## ST. ZOTIQUE.

At the Session of 1882 the sum of \$3,500 was voted towards the construction of a landing pier at this place. During the fiscal year an isolated block, 100 by 24 feet, was built in 9 feet depth of water, 1,150 feet from the shore. Provision was made in the Estimates for 1883-84 for connecting this block with the shore. Expenditure during the fiscal year, \$3,479.74.

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TADOUSSAC.

During the year the sum of \$132.37 was spent in completing the rebuilding of the four fish-dams at this place, mentioned in last year's report.

## THREE RIVERS.

At the Session of 1882 the sum of \$25,000 was voted towards improving the harbour of Three Rivers; and during the season of 1882 the lifting barge constructed specially for the removal of boulders, &c., was engaged on a shoal in the St. Lawrence opposite Three Rivers and removed a large quantity of boulders, &c. Expenditure, \$16,879.38.

## TROIS PISTOLES.

At the Session of 1882 the sum of \$2,500 was appropriated towards making a connection between the shore and the isolated block referred to in last year's report; and during the fiscal year the work was proceeded with. Expenditure, \$2,545.59.

## YAMACHICHE.

At the Session of 1882 the sum of \$2,000 was voted towards the construction of a wharf at this place, the local authorities furnishing \$3,000; and during the fiscal year the wharf has been built. Expenditure, \$4,809.68.

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PROVINCE OF ONTARIO.

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## COBOURG.

At the Session of 1882 the further sum of \$12,000 was voted to continue the extension of the piers at this harbour; and at the Session of 1883 an additional amount of \$784.79 was granted. At the close of the fiscal year, about one-third of the work under contract for the extension of the eastern pier had been completed. Expenditure during the year, \$9,849.51.

## COLLINGWOOD.

At the Session of 1882 the further sum of \$25,000 was voted towards continuing the improvements to this harbour, so as to accommodate the large class of vessels now navigating the Great Lakes. On 9th August, 1882, a contract was entered into with Mr. J. D. Silcox (who subsequently assigned his contract to Messrs. Fleming, Lindsay & Burdet), for the construction of a length of 600 feet of a breakwater, extending northwardly from the north wharf; and at the close of the year about three-quarters of the work had been completed. The work of deepening the entrance to the harbour was also continued. Expenditure during the fiscal year, \$23,932.55.

## CONSECON.

At the Session of 1882 a re-vote of \$2,000 was made towards dredging the shoal obstructing the entrance to this harbour; and during the fiscal year the work has been continued. Expenditure, \$1,929.25.

## GODERICH.

At the Session of 1882 the further sum of \$16,000 was voted for the continuance of the works at this place; and, also, the sum of \$22,500 to cover the amount awarded Mr. S. Platt by the Official Arbitrators for damage done to his property, in connection with the harbour works. Owing to an abandonment by the contractor, the Government was obliged to assume and proceed with the works mentioned in last year's report, which were only about half completed at the end of the year, the failure of the contractor having caused some delay. In April last, considerable damage was done to the breakwater by an extraordinary freshet, and the necessary repairs have been executed. Expenditure during the fiscal year, \$6,034.04, on account of construction, and \$21,188.34 to pay the award to Mr. Platt.

## HARBOURS AND RIVERS GENERALLY.

At the Session of 1882 the sum of \$8,000 was voted for general repairs and improvements to harbours and rivers in Ontario; and during the fiscal year the sum of \$4,552.45 was expended.

## KINCARDINE.

At the Session of 1882 the sum of \$5,000 was voted to continue the work for the protection of the southern side of the entrance to the harbour, then under contract with Messrs. Rookledge and McLaren. This work was completed in October, 1882. During the heavy storms of last winter it was damaged and had to be repaired; the end of the north pier was also damaged by a schooner striking against it during a gale in November, 1882, and was being repaired at the close of the year. Expenditure during the fiscal year, \$5,141.83.

## KINGSTON.

At the Session of 1882 the sum of \$12,500 was voted towards the removal of the top of Point Frederick Shoal, Kingston harbour, so as to obtain a depth of 15 feet during low water in Lake Ontario; and during the fiscal year the work has been vigorously prosecuted. Owing to the extent of this shoal and the material to be removed being rock in place, at least three years will be required to complete the work. Expenditure during the fiscal year, \$6,308.49.

## KINGSVILLE.

At the Session of 1882 the sum \$1,500 was appropriated towards the construction of a harbour of refuge at this place. In March last the works were commenced and were well under way at the close of the year. Expenditure, \$1,329.14.

## LITTLE CURRENT.

At the Session of 1882 the further sum of \$10,000 was voted to continue the deepening of the channel at this place; and between the 10th July and 10th November, 1882, 3,386 cubic yards of rock were blasted and removed. There is now a navigable channel for vessels drawing 13 feet, where in previous years there was only a depth of 9 feet. Expenditure during the fiscal year, \$9,601.68.

## LITTLE NATION RIVER.

At the Session of 1882 the sum of \$1,950 was voted for the examination of this river and the removal of obstructions to navigation; and during the fiscal year the sum of \$235.66 was expended.

## MEAFORD.

At the Session of 1882 the further sum of \$10,500 was voted to continue the improvements to this harbour. On 11th November, 1882, a contract was entered into with Mr. Robert Reed for repairing the older or inshore portion of the pier, and up to the 30th June about one-half the work had been done. Dredging to the extent of 11,500 cubic yards was done by the dredge "Challenge." Expenditure during the fiscal year, \$4,749.95.

## NAPANEE RIVER.

At the Session of 1882 the sum of \$5,000 was voted for the improvement of the navigation of this river; and a dredge was engaged from 31st July to 30th September, 1882, in opening a channel 15 feet in depth through two shoals below the town of Napanee, 23,000 cubic yards of material being removed. Expenditure during the fiscal year, \$4,963.50.

## NEWCASTLE.

At the Session of 1882 the sum of \$5,500 was voted for the improvement of this harbour, the Municipality agreeing to furnish \$2,500. On 26th April, 1883, a contract was entered into with Messrs. Munson & Rowe for the reconstruction of the pier, the contract price being \$11,000; and at the close of the fiscal year the work was in progress. Expenditure, \$1,714.41.

## OTTAWA RIVER.

At the Session of 1882 a further sum of \$1,500 was voted for continuing the dredging from the landing place at Hawkesbury to the main channel of the Ottawa; and during the fiscal year the sum of \$1,372.41 was expended for that purpose.

## OWEN SOUND.

At the Session of 1882 the further sum of \$8,000 was voted towards continuing the improvement of this harbour; and at the Session of 1883 an additional amount of \$2,000 was granted. During the year the pile work on either side of the entrance was strengthened by the placing of brush and stone; and a length of 3,000 feet of

the channel, from a point below the outer light to the southern end of the pile work, at the entrance, was dredged to a depth of 18 feet. Expenditure during the fiscal year, \$12,345.94.

## PETERBORO'.

At the Session of 1882 the sum of \$1,000 was voted for the purpose of improving the navigation of the river Otonabee, below the town of Peterboro'; and during the year the channel through Little Lake, which had become obstructed by sawdust from the mills on the river, was cleared by the use of a drag.

## PORT ALBERT.

At the Session of 1882 a further sum of \$2,200 was voted to continue the harbour improvements at this place. During the year 3,000 cubic yards of gravel and clay were deposited behind the works on the northern side of the harbour, and 90 feet of close piling driven at the eastern end, with two blocks of crib-work to finish with; and on the southern side 60 feet of crib-work was constructed, and repairs done to existing pile work. Expenditure during the fiscal year, \$1,724.53.

## PORT ELGIN.

At the Session of 1882 the further sum of \$5,500 was voted to continue the harbour improvements at this place; and during the year the breakwater referred to in last year's report as being constructed by Messrs. Sutton & McKnight, has been completed. The dredging of the northern entrance has been delayed, pending a proposed change in the plan for the improvement of this harbour. Expenditure during the fiscal year, \$10,852.98.

## PORT HOPE.

At the Session of 1882 the further sum of \$10,000 was voted towards the improvement of this harbour. During the year the extension to the eastern pier, referred to in last year's report, has been completed; and on the 19th October, 1882, a contract was entered in with Messrs. McNeeley & Watters for the construction of a breakwater from the western pier, the contract price being \$11,261.61. At the end of the year the work was well under way. Expenditure during the fiscal year, \$14,513.59.

## PORTSMOUTH.

At the Session of 1882 the further sum of \$2,000 was voted to continue the dredging at this place to obtain a depth of 13 feet at low water in Lake Ontario; and during the year the work was carried on. Expenditure, \$1,998.50.

## RIVER SYDENHAM.

At the Session of 1882 the sum of \$2,000 was voted for the purpose of clearing the east branch of this river, near Dresden, of obstructions to navigation; and the work was commenced, but no expenditure had taken place up to the close of the fiscal year.

## RONDEAU.

At the Session of 1882 the further sum of \$4,000 was voted to continue the improvements to Rondeau Harbour. During the year the piling constructed by Messrs. F. B. McNamee & Co., was partially filled with stone, and stone and brush placed in the old channels or passages between the lake and the harbour. Bisnett's Creek was dredged so as to enable vessels to enter it to load lumber, grain, &c.; and some dredging was done towards re-opening to its original size and depth the basin immediately within the entrance from the lake. Expenditure during the fiscal year \$4,534.28.

## THORNBURY.

At the Session of 1882 a further sum of \$8,000 was voted towards the completion of the improvements at this place; and during the year the work of repairing the pier and opening a basin, referred to in last report, has been completed. Expenditure during the fiscal year, \$10,766.39.

## TORONTO.

At the Session of 1882 the sum of \$100,000 was voted towards the erection of extensive works to protect the eastern portion of this harbour; and on 18th August, 1882, two contracts were entered into with Messrs. Cooke & Jones, for the construction of 13,130 feet of protection works on the eastern side of the harbour, and the eastern side of the island, the aggregate of the two contracts being \$203,385.50. The progress made to the close of the fiscal year had been satisfactory. Expenditure, \$49,417.26.

## WELLINGTON.

At the Session of 1882 the sum of \$2,000 was voted towards the construction of a breakwater. Up to the close of the fiscal year work had not been commenced. Expenditure, \$160.69 for survey expenses.

## WHITBY.

At the Session of 1882 the sum of \$4,000 was voted for the purpose of dredging this harbour to a depth of 13 feet; and the work was commenced on 29th May and completed on 8th September, 1883. Expenditure during the fiscal year, \$1,672.00.

## WIARTON.

At the Session of 1882 the sum of \$35,000 was voted for the improvement of this harbour, the Corporation of Wiarton and the Grand Trunk, Georgian Bay and Lake Erie Railway Company agreeing to contribute \$7,500 each. On 26th September, 1882, a contract was entered into with Mr. David Porter for the construction of a wharf, 1,040 feet in length, with from 14 to 18 feet of water along its face, the contract price being \$42,500; and at the close of the fiscal year three-quarters of the work had been completed. Expenditure, \$33,891.00.

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PROVINCE OF MANITOBA.

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## ASSINIBOINE RIVER.

At the Session of 1882 the sum of \$6,000 was voted for the improvement of this river; and during the fiscal year extensive repairs were made to the wing dams constructed in 1880. Expenditure, \$7,244.13.

## HARBOURS GENERALLY.

At the Session of 1882 the sum of \$1,000 was voted for general repairs and improvements to harbours and rivers in Manitoba, but only the small sum of \$42 was expended during the fiscal year.

## RED RIVER.

At the Session of 1882 the sum of \$12,000—of which \$7,000 was a re-vote—was granted for the purpose of making a channel 2,600 feet long, 40 feet wide and having a depth of 8 feet at ordinary height of water, through the sand bar at the mouth of this river; and during the fiscal year work was commenced. Expenditure, \$1,368.31.

## WATER HEN RIVER.

At the Session of 1882 the sum of \$5,000 was voted for an examination of this river. During the summer of 1882 this examination was made, and the report of the Chief Engineer of this Department thereon will be found in Appendix 6, pages 97-102. Expenditure, \$4,999.63.

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NORTH WEST TERRITORIES.

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## SASKATCHEWAN RIVER.

At the Session of 1882 the sum of \$20,000—of which \$18,000 was a revote—was granted for the purpose of improving the navigation of this river, the Hudson's Bay Company agreeing to contribute \$12,000. The works are being carried out by the Hudson's Bay Company under an arrangement with them. Expenditure up to the close of the fiscal year \$5,823.23.

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BRITISH COLUMBIA.

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## FRASER RIVER.

The navigation of this river above New-Westminster being obstructed by snags, instructions were issued to the Agent of this Department in British Columbia to call  
lxix

for tenders for the removal of about twenty, the removal of which was most urgently required. A contract was made with Mr. Henry Saunders, at the rate of \$100 each, and under it 18 snags were removed, greatly improving the navigation of the river. Expenditure, \$2,059.64.

#### HARBOURS GENERALLY.

At the Session of 1882 the sum of \$2,000 was voted for the improvement of harbours and rivers generally in British Columbia; but up to the close of the fiscal year only the small sum of \$48 had been expended.

#### NAAS RIVER.

At the Session of 1882 a further sum of \$500 was voted for the removal of snags from the channel of this river; and during the fiscal year \$210.98 was expended for that purpose.

#### SKEENA RIVER.

At the Session of 1882 the sum of \$2,000 was voted for the removal of snags from this river; and during the fiscal year \$751.12 was spent for that purpose.

#### VICTORIA HARBOUR.

At the Session of 1883 the sum of \$2,504.40 was voted to pay the legal representatives of the late Thomas Spence the balance of his contract for removing "Beaver Rock," Victoria Harbour; but up to the close of the fiscal year the payment had not been made.

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### HARBOURS AND RIVERS GENERALLY.

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At the Session of 1882 the sum of \$16,000 was appropriated for the staff and maintenance connected with harbours and rivers generally, and during the fiscal year the sum of \$6,160.40 was expended.

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### SURVEYS AND EXAMINATIONS.

At the Session of 1882 the sum of \$25,000 was voted for this service; and at the Session of 1883 an additional grant of \$5,000 was made. During the fiscal year surveys were made at 109 places, a list of which will be found in Appendix No. 4, pages 64-66; and, with few exceptions, plans, reports, and estimates have been submitted. Expenditure during the fiscal year, \$29,829.98.

## DREDGING AND DREDGE VESSELS.

At the Session of 1882 the sum of \$128,000 was appropriated for new dredging plant, repairs to old plant, and dredging; and at the Session of 1883 an additional sum of \$700 was granted for new plant. The following table shows the appropriations and expenditures by Provinces; the vote for the Maritime Provinces was in one sum, and not separately for Nova Scotia, Prince Edward Island and New Brunswick:—

	Appropriation.	Expenditure.
New plant.....	200 00	\$7,578 11
Dredge vessels, repairs.....	19,000 00	21,983 66
Maritime Provinces.....	52,000 00	52,132 44
Quebec.....	20,000 00	25,074 26
Ontario.....	20,000 00	16,017 84
British Columbia.....	7,500 00	7,301 08
General Service .....	5,000 00	1,754 27
	\$128,700 00	\$131,841 66

### DREDGE VESSELS.

The dredging plant of the Dominion consists of two steam hopper dredges; one elevator dredge and six scows; seven dipper dredges and 29 scows; three steam tugs, and one stone-lifter, particulars of the cost, average working expenses, &c., of which will be found in Appendix No. 7, page 103. The following is a general summary of the work performed by each dredge during the fiscal year, full details of which will be found in Appendix No. 4, pages 66-90:—

#### “ST. LAWRENCE.”

This dredge worked at Port Caledonia and other places in Nova Scotia from 1st July to 14th December, 1882, when she went into winter quarters at Halifax, where she resumed work on 23rd April, 1883, and was at work at Little Glace Bay at the close of the fiscal year. The total quantity removed by this dredge during the year was 25,637½ cubic yards, at a cost of 53 $\frac{96}{100}$  cents per yard.

#### “CANADA.”

At the commencement of the fiscal year this dredge was working at Sherbrooke, N. S., and worked there and at other places in Nova Scotia and New Brunswick until 24th November, 1882, when she was placed on the marine slip at Pictou, N. S., and during the winter underwent necessary repairs. On 2nd May, 1883, she

resumed work at Pictou, N. S., and was working at Shediac, N. B., at the close of the year. This dredge removed 32,435 cubic yards of materials during the year, at an average cost of  $31 \frac{64}{100}$  cents per yard.

“ NEW DOMINION.”

The new hull for this dredge, referred to in last year's report, was completed and handed over by the contractor on 17th August, 1882. On 31st August she commenced work at McMann's Cove, Grand Lake, N. B., where she remained until 26th October, and then went into winter quarters at St. John, N. B. On 12th May, 1883, she commenced work at Digby, N. S., and was still engaged there at the close of the year. Owing to the range of the tide at Digby being from 25 to 30 feet, and the fact that the dredge is arranged to dig to a depth of 18 feet only, about three hours was all that could be worked during a tide, hence delay and increased expense. The total quantity dredged during the fiscal year was 26,675 cubic yards, at an average cost of  $22 \frac{12}{100}$  cents per yard.

“ CAPE BRETON.”

This dredge was operating at the mouth of the Tatamagouche River, N. S., on 1st July, 1882, and remained there until 23th October, when she went to Pictou, N. S., and worked until 24th November, on which date she went into winter quarters. During the winter extensive repairs were made to the dredge, hull and scows. On 10th May, 1883, she resumed work at Pictou, and was working at Mabou at the close of the year. This dredge removed 42,775 cubic yards of material during the year, at an average cost of  $27 \frac{92}{100}$  cents per cubic yard.

“ PRINCE EDWARD.”

At the commencement of the fiscal year this dredge was working at Murray Harbour, P. E. I., where she remained until 26th October, when she was taken to Pictou, N. S., and worked there until she went into winter quarters on 24th November, 1882. During the winter she was repaired. On 11th May, 1883, she commenced work at Charlottetown, P. E. I., and was engaged there at the close of the year. The total quantity of material removed by this dredge during the year was 79,365 cubic yards, at an average cost of  $16 \frac{16}{100}$  cents per yard.

“ GEO. M'KENZIE.”

This dredge commenced work at Grand Goulet, N. S., on the 8th July, 1882, and worked there and at River Bourgeois until January, 1883, when she went to Halifax, where she arrived, after a stormy and dangerous passage, on the 18th January. Here her machinery was altered to admit of dredging being done at a depth of 31 feet; and, on 26th January, she commenced work for the Intercolonial Railway, and was so employed up to the close of the fiscal year. The total quantity of material removed by this dredge during the year was 53,729 cubic yards, at an average cost of  $23 \frac{62}{100}$  cents per yard.

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“CHALLENGE.”

On 1st July, 1882, this dredge was at work in Goderich Harbour, and worked there and at other places in Ontario until 1st December, when she went into winter quarters. On 19th April, 1883, work was resumed at Meaford, and after being repaired in the dry dock at Collingwood, she proceeded to Lion's Head, where she was at work at the close of the fiscal year. The total quantity of material removed by this dredge during the year was 47,950 cubic yards, at an average cost of  $15\frac{48}{100}$  cents per yard.

“NIPISSING.”

On 1st July, 1882, this dredge commenced work at Rivière Beaudet, P. Q., and worked there and at other places until 18th November, when she went into winter quarters at Ottawa. On the opening of navigation she resumed work at Hawkesbury, Ont., and was engaged there at the close of the fiscal year. The quantity of materials removed by this dredge during the fiscal year was 33,570 cubic yards, at an average cost of  $16\frac{8}{10}$  cents per yard.

“QUEEN OF CANADA.”

At the commencement of the fiscal year this dredge was working at Laprairie P. Q., and continued there until 18th November, 1882, when she was removed to Montreal and placed in winter quarters. On the opening of navigation work was resumed at Laprairie, and was being continued there at the close of the fiscal year. The quantity of material removed was 17,925 cubic yards, at an average cost of  $30\frac{3}{4}$  cents per yard.

“NO. 1” (ELEVATOR).

This dredge was obtained from the Montreal Harbour Commissioners for the purpose of continuing the work on the channel at St. Placide, P. Q., commenced by the “Nipissing” during 1881-82. She worked from 1st July to 12th August, 1882, when it was found that the water had fallen too low for operations to be continued, and she was taken to Sorel and handed back to the Harbour Commissioners. Total quantity removed 14,000 cubic yards, at an average cost of  $19\frac{5}{8}$  cents per yard.

“THE DREDGER”—BRITISH COLUMBIA.

At the commencement of the fiscal year this dredge was operating off Shoal Point, Victoria Harbour, and continued at work until 26th January, 1883, when the appropriation being exhausted, she was laid up. Two scows were added to the plant during the year.

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DREDGING.

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PROVINCE OF NOVA SCOTIA.

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DIGBY.

The dredge "New Dominion" was engaged from 12th May to 30th June, 1883, in deepening the southern side of the public wharf to permit the approach of steamers at low tide; and 6,235 cubic yards of clay, blue mud and stone were removed. Expenditure, \$1,091.64.

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GRAND GOULET.

The dredge "Geo. McKenzie" worked here from 8th July to 14th October, 1882, opening a passage into the bassin, through the outer and inner bars; and 23,584 cubic yards of sand, mud, gravel, &c., were removed. Expenditure, \$5,408.06.

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HALIFAX.

The dredges "St. Lawrence" and "Geo. McKenzie" worked at intervals from 3rd October, 1882, to the close of the fiscal year, on account of the Department of Railways and Canals, in connection with the deep water terminus of the Intercolonial Railway; and 16,650 cubic yards of mud, stones, clay, gravel, rock and boulders were removed. Expenditure, \$5,088.25.

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LITTLE GLACE BAY.

The dredge "St. Lawrence" was employed from 2nd August to 21st September, 1882, in deepening the entrance to the harbour; and 4,500 cubic yards of mud, clay and sea-weed were removed, as well as a number of old piles, timber and rocks. Expenditure, \$3,446.94.

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MABOU.

The dredge "Cape Breton" was engaged from 12th June to the close of the year continuing the work of opening a channel to a depth of 14 feet through a shoal lying off the entrance to the harbour; and had removed 4,060 cubic yards of materials. Expenditure, \$814.43.

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PICTOU.

The dredge "Cape Breton" worked in the channel to the public wharf from the 28th October to 24th November, 1882; the "Prince Edward" from the 3rd to the 24th November, 1882, and the "Canada" from the 19th to the 22nd May, 1883. The "Cape Breton" worked in a channel from the channel of Middle River to Shaw's brickyard, from the 10th to the 29th May, 1883; and the "Canada" at the loading pier of the Acadia Coal Company, from the 22nd to the 29th May, 1883. Altogether 31,210 cubic yards of mud and clay were removed. Expenditure, \$5,713.36.

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PORT CALEDONIA.

The dredge "St. Lawrence" was engaged from the commencement of the fiscal year to 2nd August, 1882, and from the 10th May to 18th June, 1883, in deepening the harbour for the accommodation of the large class of vessels engaged in the coal trade; and 12,775 cubic yards of sand, clay and stone were removed, leaving 20 feet of water. Expenditure, \$5,970.62.

## RIVER BOURGEOIS.

The dredge "Geo. McKenzie" was engaged from the 18th October to 25th November, 1882, in deepening several shoal points; and 18,920 cubic yards of mud, clay and stone were removed. Expenditure, \$4,338.56.

## RIVER JOHN.

The dredge "Cape Breton" operated on the bar at the mouth of this river from 20th May to 5th June, 1883, removing 2,759 cubic yards of mud. Expenditure, \$581.33.

## SHERBROOKE.

The dredge "Canada" was at work here at the commencement of the fiscal year and remained until 8th July, removing only 750 cubic yards of gravel and stones. Much delay was experienced from the fact that the dredging could only be done between half-flood and half-ebb tide, and the dredged material had to be conveyed 10 miles to a place of deposit. Expenditure, \$119.96.

## TATAMAGOUCHE.

The "Cape Breton" was employed here opening a channel through the bar at the mouth of the river, from the commencement of the fiscal year to 23rd October, 1882, removing 19,500 cubic yards of sand and mud. Expenditure, \$4,055.77.

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PROVINCE OF PRINCE EDWARD ISLAND.

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## CHARLOTTETOWN.

The dredge "Prince Edward" worked from 11th May, 1883, to the close of the fiscal year, opening a channel to the ferry wharf; and 29,520 cubic yards of mud and sand were removed. Expenditure, \$3,386.62.

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PROVINCE OF NEW BRUNSWICK.

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## BUCTOUCHE.

The dredge "Canada" worked at Priest's Point and Chapel Point in this harbour from 11th September to 15th November, 1882, removing 7,695 cubic yards of mud. Expenditure, \$2,051.37.

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COCAGNE.

The dredge "Canada" operated here from 15th July to 9th September, 1882, improving the entrance to the harbour; and removing 12,780 cubic yards of mud and shells. Expenditure, \$3,406.94.

## GRAND LAKE.

The dredge "New Dominion," worked at McMann's Cove, Grand Lake, from 31st August to 28th October, 1882, completing a channel from the main channel up to and around the head of the public wharf. 20,440 cubic yards of clay, sand, mud and stone were removed. Expenditure, \$3,578.64

## POINTE DU CHÊNE (SHEDIAC HARBOUR).

The dredge "Canada" was engaged from the 25th May, 1883, to the close of the fiscal year, in removing lumps and obstructions from the channel of the harbour, and near the Intercolonial Railway wharf; and 7,650 cubic yards of mud and shells were removed. Expenditure, \$2,039.37.

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PROVINCE OF QUEBEC.

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## LAPRAIRIE.

From the commencement of the fiscal year to 18th November, 1882, and from the opening of navigation to 30th June, 1883, the dredge "Queen of Canada" was engaged deepening to 7 feet at low water around the public wharf at this place, and the channel leading thereto from the main channel of the St. Lawrence. 17,025 cubic yards of hard packed gravel, sand, boulders, &c., were removed. Expenditure, \$4,878.66.

## RIVER BEAUDET.

The dredge "Nipissing" worked at this place from 1st July to 2nd October, 1882, deepening to 7 feet the bar at the mouth of the river, and the channel near to the railway bridge. 20,775 cubic yards of clay and sand were removed. Expenditure \$2,186.07.

## RIVER RICHELIEU.

Some dredging was done by dredge "No. 1" at St. Charles and St. Ours in August 1882. Expenditure \$39.29.

## RIVER ST. LAWRENCE.

The operations of the dredging plant at work at the opening of the fiscal year on the ferry route between Longue Pointe and Boucherville, were continued until the 3rd November, when the channel was completed. Expenditure \$9,180.87.

## ST. PLACIDE.

The work of opening a channel to the public wharf, referred to in last year's report, was continued by dredge "No. 1" from 1st July to 12th August, 1882; and 14,000 cubic yards of material removed. Expenditure, \$5,061.08.

## GENERALLY.

The sum of \$3,728.79 was expended in dredging generally in the Province.

## PROVINCE OF ONTARIO.

## GANANOQUI.

With the aid of an extemporized drag, a large quantity of slabs and refuse were removed, and a depth obtained sufficient to float vessels engaged in the trade of this harbour. Expenditure, \$1,998.31.

## HAWKESBURY.

The dredge "Nipissing" worked here from 11th October to 6th November, 1882, and from the opening of navigation to end of fiscal year, removing 10,676 cubic yards of sand, gravel, &c. Expenditure, \$406.95.

## RIVIÈRE AU SABLE.

The dredge "Challenge" worked here from 18th August to 8th September, cutting a channel through the bar at the mouth of the river, and removed 5,350 cubic yards of fine sand. Expenditure, \$892.13.

## SALMON RIVER, SHANNONVILLE.

A passage was opened by means of a tug steamer through the sawdust and debris, which had lodged in the channel opened through the bar at the mouth of the river. Expenditure, \$240.00.

## THAMES RIVER.

During the year a dredge was employed cutting to a depth of 12 feet a channel through the bar at the mouth of this river, removing 26,375 cubic yards of sand and clay; 5,665 cubic yards of hard clay &c., were also removed in deepening the harbour to 12 feet. McGregor's Creek, which empties into the Thames at Chatham, was also deepened to 12 feet, so as to allow vessels to reach the elevator and load. The banks of this creek being high, the deepening has caused slips, and Barrack Point has had to be protected by sheet piling. Expenditure, \$8,084.75.

## TRENTON.

The work referred to in last year's report was completed during the present year. Expenditure, \$500.00.

## GENERALLY.

During the fiscal year the sum of \$3,895.70 was expended on dredging generally in Ontario.

## SLIDES AND BOOMS.

At the Session of 1882 the sum of \$105,750 was voted for the construction, repairs and maintenance of Dominion slides, booms, &c., and at the Session of 1883 an additional grant of \$2,000 was made, making a total of \$107,750 for the fiscal year ended 30th June, 1883. The expenditure has been as follows:—

District.	Construc- tion.	Repairs.	Staff and Main- tenance.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Saguenay District .....	2,065 05	2,379 07	1,033 68	5,477 80
St. Maurice do .....	698 23	5,524 73	15,460 92	21,683 88
Ottawa do .....	753 10	26,166 41	22,874 19	49,793 70
Newcastle do .....		4,127 61	1,077 36	5,204 97
Belœil Piers and Booms .....			90 90	90 90
River Richelieu, maintenance of Buoys.....			457 50	457 50
	3,516 38	38,197 82	40,994 55	82,708 75

## SAGUENAY DISTRICT.

The slide and booms to facilitate the descent of timber from Lake St. John to the River Saguenay are situated on La Petite Décharge, the smaller of the two outlets from the lake to the river. The slide is 5,840 feet long, and the booms 1,344 feet. During the last fiscal year 1,000 feet of the slide, on an average height of 15 feet, have been re-constructed, making a total of 2,239 feet built in new since 1881. About 2,800 feet of the slide still requires to be rebuilt, and provision has been made for continuing the work. Repairs were made to the Superintendent's house, and to some of the booms and dams. The total number of logs, &c., passing through the slide during the fiscal year was 45,783.

## ST. MAURICE DISTRICT.

The works on the St. Maurice are situated at seven stations from the mouth of the river to LaTuque Falls, a distance of 100 miles; and there are also two stations on the Vermilion River, a tributary of the St. Maurice. During the last fiscal year the water was very high, and over 400,000 logs entered the booms. Notwithstanding the enormous pressure the booms had to bear, no accident occurred and no timber was lost. On the 14th April, 1883, a contract was entered into with Mr. Joseph Raynar for the construction of eight piers and 3,200 feet of retaining booms above the railway terminus at the Piles, the contract price being \$19,665; and the work is being proceeded with. During the year four snubbing piers were constructed at the mouth of the St. Maurice, two at Cap Corneille and two at Les Grès, and some repairs were made at Shawenegan and Grande Mère.

## OTTAWA DISTRICT.

This district embraces the Ottawa River and its tributaries, the Gatineau, Madawaska, Coulonge, Black, Petewawa and DuMoine Rivers. There are in it, altogether, eighty-three stations, and the works for facilitating the descent of timber aggregate as follows:—

5,071	lineal feet of canal.
17,800	“ “ slides.
67,794	“ “ booms.
17,412	“ “ dams.
405	“ “ bulkheads.
2,313	“ “ bridges.
346	“ “ glance piers.
153	piers.
5	storehouses.
4	slide-keepers' houses.
1	boom-men's house.

The water in the Ottawa and its tributaries, during the season of 1882, was favorable for the driving of timber and logs, and, as a general thing, the rafts and drives reached their destinations earlier than usual. During the winter and spring, repairs were made at the following stations on the Ottawa River, viz.:—Hull, Ottawa, Chats Rapids, Cheneaux, Portage du Fort, Mountain, Calumet and Joachims; and on the tributaries. At the Calumet and Black River Slides the repairs were quite extensive, as well as at the Ragged Chute, on the Madawaska. On the lower

reach of the Petawawa, the slides and dams were improved and strengthened. The Superintendent of these works, in his report (Appendix No. 13, pages 159-64), says:—

“The works at the principal stations on the main Ottawa River, when they were built about forty years ago, were well adapted for the descent of timber that then passed during the spring or early summer months; but now that the operations of the lumbermen have been extended to the Kippewa and Temiscamingue districts, and to the more distant limits on the tributaries, the products of the forests do not reach the lower stations until late in the season; and consequently, at much lower stages of the water than the works were designed for. When opportunity offers, the slide bottoms should be lowered and the approaches and outlets deepened in order that the late rafts may not be delayed in their passage; and as this is a question of vital importance to those engaged in the great staple trade of the Ottawa, it is extremely desirable that steps may be taken, as early as possible, to have so desirable an improvement consummated.”

Total number of logs or pieces of timber passing through the slides 3,820,202.

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### NEWCASTLE DISTRICT.

The works in this District are of two classes, those connected with navigation which are under the control of the Department of Railways and Canals, and those constructed to facilitate the descent of timber down the River Trent and its tributary waters, which are under the control of the Department of Public Works. During the spring of 1883 the water rose 25 feet above the ordinary spring height, which was higher than ever known before, except in the spring of 1870. Although several private dams and mills were swept away, none of the Government works suffered any material damage. The total number of logs, &c., passing through the slides, was 805,732. During the year necessary repairs were made at Fenelon Falls, Little Lake, Hastings and Heely's Falls.

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### ROADS AND BRIDGES.

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At the Session of 1882 the sum of \$46,000 was voted towards the construction and maintenance of such roads and bridges as are under the control of this Department; and during the fiscal year the sum of \$4,066.83 has been expended.

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### ROADS.

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#### TEMISCOUATA ROAD.

During 1882, twenty-seven culverts and three small bridges were rebuilt, and the bushes and trees, which had grown up on either side of the road, were cut down along a length of 21 miles. The bridge over Rivière Verte, which had sunk about

a foot on the southern side, was raised to its original level, and the rebuilding of the bridge over the St. Francis River was being proceeded with. Expenditure during the fiscal year, \$2,454.54.

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## BRIDGES.

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### DES JOACHIMS BRIDGE.

At the Session of 1882 the sum of \$12,000 was granted towards the construction of an Inter-Provincial bridge over the Ottawa River at Des Joachims, the Provincial Governments of Ontario and Quebec each contributing \$4,000. On 8th September, 1882, a contract for the construction of the bridge was entered into with Messrs. Starrs, Herbert & O'Hanly, the contract price being \$25,300. Expenditure during the year, \$323.23.

### EMERSON.

At the Session of 1882 the sum \$30,000 was voted to assist the Corporation of the town of Emerson in building a bridge over the Red River; but up to the close of the fiscal year no payment had been made.

### PORTAGE DU FORT BRIDGE

During the fiscal year the sum of \$100 was paid to the municipality of the village of Portage du Fort, being balance of Government grant towards repairs.

### UNION SUSPENSION BRIDGE.

During the fiscal year the wires and cables of the Union Suspension Bridge connecting the cities of Ottawa, Ont., with Hull, Que., were thoroughly examined and strengthened by the substitution of new materials wherever needed. Expenditure, \$1,189.01.

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## TELEGRAPHS.

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At the Session of 1882 the sum of \$94,500 was voted towards the construction, repairs and maintenance and working expenses of the Government telegraph lines under the control of this Department; and at the Session of 1883, a further sum of \$19,000 was voted. On the 1st July, 1882, the Government telegraph lines in the North-West, which had been maintained by the Department of Railways and Canals as part of the Canadian Pacific Railway, were transferred to this Department; and an Order in Council was passed transferring to this Department the sum of \$35,000, included in the vote for the Canadian Pacific Railway at the Session of 1882. The

entire charge of the Signal Service and Fisheries Bulletin having been given to the Department of Marine and Fisheries; the sum of \$6,000, included in the vote for Telegraph and Signal Service generally, was transferred from the Department of Public Works to that of Marine and Fisheries. Below will be found a statement showing the amount voted for each section and the expenditure; where the amount spent exceeds the amount appropriated, the excess was met out of an unexpended balance brought forward from the previous year:—

	Appropriation.	Expenditure.
Lower St. Lawrence and Maritime		
Provinces—Maintenance.....	\$13,000 00	\$12,425 42
North Shore St. Lawrence—Construc-		
tion .....	22,000 00	24,272 11
Maritime Provinces—Semaphores .....		1,528 65
Manitoba and North-West—Construc-		
tion .....	51,000 00	49,449 05
British Columbia—Maintenance.....	33,000 00	30,505 89
Telegraph and Signal Service gener-		
ally—Construction and Mainten-		
ance.....	23,500 00	18,489 83
	<u>\$142,500 00</u>	<u>\$136,670 95</u>

#### MARITIME PROVINCES AND GULF OF ST. LAWRENCE.

During the year the cable connecting the Magdalen Islands with the mainland was severed by a schooner's anchor, and was repaired as soon as possible after the return of the steamer "Newfield" from England. The Bird Rock cable, which had been out of order for some months, was re-laid over a distance of five miles, and communication between the Rock and the Magdalen Islands re-established. The cable between Campo Bello and Grand Manan was broken by a wood-boat grounding on it in November, 1882, and, on account of the absence of the "Newfield," could not be repaired until September, 1883. The revenue derived from the Anticosti, Magdalen Islands and Bay of Fundy lines, during the year 1882-83, was \$2,387.33, and the expenditure \$6,249.05, as compared with \$1,854.00 revenue, and \$6,920.00 expenditure, in fiscal year 1881-82.

#### NORTH SHORE OF THE ST. LAWRENCE.

During the autumn of 1882 this line was extended from Mille-Vaches to Betsiamits, a distance of 58½ miles, under a contract with the Great North-Western Telegraph

Company, and the whole of the North Shore system from Murray Bay to Betsiamits, and from Baie St. Paul to Chicoutimi, 239 miles altogether, was satisfactorily worked by the same Company for the sum of \$1,000, plus the receipts from the line. No further extension was made during the fiscal year; but on 16th July, 1883, construction of land lines was re-commenced, and at the close of the season of 1883, the line had been extended to a point  $13\frac{1}{2}$  miles beyond Pointe des Monts, being 235 miles below Murray Bay. This last section consists of 38 miles of cable and 50 miles of land lines. Two cables were laid by the Government steamer "Newfield," one of 12 miles in length, between Betsiamits and Pointe aux Outardes, and the other 26 miles in length, from Point Paradis to River Godbout. This line will probably be completed to Pentecost River, a further distance of about 18 miles, towards the 15th January, 1884.

### MANITOBA AND NORTH-WEST TERRITORIES.

The Government telegraph lines in Manitoba and the North-West were transferred from the Department of Railways and Canals to this Department in the summer of 1882. At the time of transfer the lines which had been constructed were:—

	Miles.
Prince Arthur's Landing to Winnipeg <i>via</i> Selkirk.....	433
Selkirk to Edmonton <i>via</i> Humboldt.....	812
Total.....	<u>1,245</u>

The line from Selkirk to Edmonton was built on what was supposed to be the route of the Canadian Pacific Railway, north of Lake Manitoba, but the location of the railway being changed, the telegraph line was found to be very expensive to maintain, and it was decided to abandon altogether that section of the line between Selkirk and Humboldt, a distance of 426 miles. This has been done, and during the fiscal year a new line has been constructed from Qu'Appelle station, on the Canadian Pacific Railway, to Humboldt, a distance of 141 miles; and from Humboldt to Edmonton, 396 miles, the old telegraph line is used. The Government lines in Manitoba and the North-West at the close of the fiscal year were:—

	Miles.
Prince Arthur's Landing to Winnipeg.....	433
Qu'Appelle station to Edmonton.....	537
Total.....	<u>970</u>

A branch line from Saskatchewan to Prince Albert, about 100 miles, was being constructed. Since the close of the fiscal year the Superintendent of Government Telegraphs has inspected the line from Qu'Appelle to Edmonton. In a supplementary report (Appendix No. 22, pages 251-58) he describes the condition of the line. From Qu'Appelle to Humboldt the line, being new, is in good condition, but from Humboldt to Edmonton it is generally bad.

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TELEGRAPH LINES THROUGHOUT THE WORLD.

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In appendix No. 23, pages 259,268, will be found statements showing the various telegraph systems throughout the world, from which it appears that Canada possesses greater telegraphic facilities in proportion to population than either the United States or Great Britain; the number of offices in Canada being 2,259, or one to every 1,914 of population, while in the United States there is one office to every 3,700 persons, and in Great Britain one to every 6,508.

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UPPER OTTAWA IMPROVEMENT.

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In Appendix No. 5, pages 91-6, will be found a report and a memorandum by the Chief Engineer of this Department, on the two propositions made with reference to the improvement of the Upper Ottawa. One of these proposals is to dam the river at Mountain Rapids so as to form still-water navigation to the head of Lake Temiscamingue, 90 miles; the other is to dam Lake Temiscamingue so as to form a reservoir for supplying the Ottawa River during the period of low water, to facilitate the descent of timber. Either of these projects, which are antagonistic to each other would cost from \$250,000 to \$500,000; and the Chief Engineer is unable to report on the feasibility of either scheme, until a thorough survey of the river has been made from the Mountain Rapids to the City of Ottawa.

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QUEBEC HARBOUR IMPROVEMENTS.

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In Appendix No. 8, pages 107-10, will be found the report of the Quebec Harbour Commissioners on the harbour improvements at Quebec, and the Graving Dock at Lévis.

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LÉVIS GRAVING DOCK.

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Owing to the time necessarily taken with the completion of the concrete dam and bottom forming a structural addition to the outworks, progress with general works only extended to the back of the intermediate dam, for a length of 300 feet out of a total length of 500 feet of the main work or dock proper, together with the entrance works connected with the previously constructed wing-walls. The total expenditure on this work to the end of the fiscal year was \$419,096.79.

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PRINCESS LOUISE EMBANKMENT.

During the fiscal year nothing was done on the Princess Louise Embankment Works, River St. Charles, after closing the contracts for the first section of these works, except some dredging and the preparation of material, and the construction of extensive dredging and other plant.

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MONTREAL HARBOUR IMPROVEMENTS.

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CHANNEL BETWEEN MONTREAL AND QUEBEC.

In Appendix No. 9, pages 111-16, will be found the report of the Montreal Harbour Commissioners on the deepening of the channel of the St. Lawrence, between Montreal and Quebec, from which it appears that the deepening of the channel to 25 feet at low water was completed during the season of 1882, at all places above Cap-à-la-Roche.

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"SHEARER" SCHEME.

In Appendix No. 10, pages 117-50, will be found the report of the Chief Engineer of this Department on the St. Lawrence Bridge and Manufacturing Company's project for damming the St. Lawrence at Montreal, commonly known as the "Shearer" scheme. According to the report, the result of the proposed works, if executed, would be to lower the level of the river in the harbour of Montreal in a manner detrimental to navigation, and to flood the low lands on either side of the St. Lawrence, at and above the City of Montreal. Any advantages for manufacturing purposes would be more than counterbalanced by the damage done to navigation and property.

Since his report was written, the Chief Engineer has obtained a copy of a report on a proposal similar to the "Shearer" scheme, made to His Excellency Lord Sydenham, by Major D. Cole, R.E., and Lieut. S. Westmacott, R.E., under date 29th May, 1841, in which the proposal to dam the St. Lawrence is condemned on the same grounds taken by the Chief Engineer of this Department. Messrs. Cole and Westmacott's report will be found in Appendix No. 36.

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GOVERNMENT PIERS AND WHARVES.

Appendix No. 16, pages 179-86, contains a statement showing the Government piers and wharves in the Provinces of Ontario and Quebec, giving the location, dimensions, depth of water, &c.

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## OPENING AND CLOSING OF NAVIGATION.

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Appendix No. 17, pages 187-203, contains tabular statements showing the dates of the opening and closing of navigation for a series of years, at the principal ports of Canada on the seaboard, and on the Gulf and River St. Lawrence and the Great Lakes; as well as the ports which are always open.

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## TIME OF HIGH WATER.

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Appendix No. 18 pages 209-18, shows the time of high water, full and change, and the rise of neap and spring tides at various places in Canada.

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## ARRIVALS FROM SEA, &c.

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In Appendices Nos. 19, 20 and 21, pages 219-232, will be found statements of the number of vessels which have arrived from sea from 1868 to 1882, at Halifax, St. John, Charlottetown, Quebec, Montreal and Victoria; the number and tonnage of vessels constructed at the principal ship-building ports of Canada, from 1868 to 1882; and the number of vessels wrecked on the sea-coast and in the Gulf, River and Lakes of the St. Lawrence from 1868 to 1881.

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## TABLES OF DISTANCES.

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Appendix No. 24, pages 269-328, contains a number of tables relating to the inland navigation of Canada, ocean routes to foreign countries, Canadian land routes to the seaboard, Government railways and telegraph lines, &c., &c.

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## ARBITRATIONS AND AWARDS.

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At the Session of 1882 the sum of \$5,000 for arbitrations and awards was included in the general vote for miscellaneous works. During the fiscal year the expenditure has been \$3,338.90. In Appendix No. 26, pages 339-42, will be found a statement of the cases having reference to works under the control of this Department which were referred to the Official Arbitrators during the fiscal year, together with the action taken thereon.

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## PROPERTY LEASED, &c.

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Appendix No. 27, pages 343-47 contains statements of the property leased to or by the Department during the fiscal year, and of property purchased or sold during the same period.

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## CONTRACTS.

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In Appendix No. 28, pages 349-54, will be found a statement of the contracts let by the Department during the fiscal year.

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## ACTS RELATING TO PUBLIC WORKS.

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Appendix No. 29, pages 355-358, contains a list of some of the Public Acts of the Parliament of Canada, passed at the Session of 1883, and having reference to the Public Works Department or works under its charge.

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## ORDERS IN COUNCIL, &c.

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Appendix No. 30, pages 359-62, contains a list of the Orders in Council and Proclamations respecting tolls and regulations on Public Works during the last fiscal year.

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## NATIONAL ART GALLERY.

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This gallery was opened to the public on 27th May, 1882, and up to the close of the last fiscal year had been visited by 8,261 persons. A list of the pictures, &c., contributed will be found in Appendix No. 32, pages 367-70.

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## EXPENDITURE ON PUBLIC WORKS.

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Appendix No. 33, pages 371-380, contains summary statements of the expenditure on public works, by Provincial Governments prior to Confederation, and from  
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Government and other sources from Confederation to 30th June, 1882; the amount expended in each Province; the expenditure on works authorized by special Acts of Parliament, and the cost of the Parliament and Departmental Buildings, Ottawa.

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### DEPARTMENTAL STAFF.

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Appendix No. 34, pages 381-84, contains a list of the Members, Commissioners and Assistant Commissioners of the Board of Works of the Province of Canada from 1841 to 1867; and of the Ministers, Deputy Ministers, Secretaries, Chief Engineers and Chief Architects of the Department of Public Works from Confederation to 30th June, 1883.

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### OFFICIAL CORRESPONDENCE.

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Appendix No. 35, pages 385-8, contains a statement of the official correspondence of the Department, from 1867 to 30th June, 1883.

Respectfully submitted,

HECTOR L. LANGEVIN,

*Minister of Public Works.*

OTTAWA, 13th December, 1883.

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## APPENDICES

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APPENDIX No. I.

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STATEMENT OF EXPENDITURE

DURING FISCAL YEAR ENDED 30TH JUNE, 1883<sup>1</sup>/<sub>2</sub>

BY

O. DIONNE, ACCOUNTANT.

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## APPENDIX No. I.

STATEMENT showing the Amount expended by the Department of Public Works,  
Dominion of Canada, during the Year ended 30th June, 1883.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<b>PUBLIC BUILDINGS.</b>				
<b>GENERALLY</b> .....	10,255 61			10,255 01
<i>Nova Scotia.</i>				
Antigonish Public Buildings.....	2,072 34			2,072 34
Halifax Dominion Building.....		2,245 02		2,245 02
do Penitentiary.....		400 99		400 99
New Glasgow Public Buildings.....	4,768 00			4,768 00
North Sydney Custom House.....	10 50			10 50
Pictou Marine Hospital.....	3,081 47	21 25		3,102 72
Sydney Inland Revenue Office.....		17 50		17 50
do Quarantine Hospital.....	178 48			178 48
Truro Custom House, Post Office, &c.....	4,018 00			4,018 00
Windsor do do.....	2,573 45			2,573 45
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building.....		1,240 91		1,240 91
do Marine Hospital.....	72 35			72 35
do Military Buildings.....		691 20		691 20
Souris Marine Hospital.....	73 00			73 00
Summerside Public Building.....	817 97			817 97
<i>New Brunswick.</i>				
Carleton, St. John, Post Office.....	996 43			996 43
Chatham Custom House, &c.....		2,050 00		2,050 00
Dorchester Penitentiary.....	18,983 42	20 00		19 003 42
Fredericton Post Office, &c.....		170 95		170 95
Moncton Post Office and Custom House.....	4,811 10			4,811 10
St. John Civil Service Examination Office.....		3 25		3 25
do Custom House.....	1,703 65	398 75		2,102 40
do Fort Dufferin.....	4,958 28			4,958 28
do Marine Hospital.....	20,714 75			20,714 75
do Military Buildings.....		1,168 85		1,168 85
do Penitentiary.....		76 25		76 25
do Post Office.....	3,539 50	147 35		3,686 85
do Savings Bank.....		288 35		288 35
Sussex Post Office, &c.....	15,682 15			15,682 15
Woodstock Post Office, Custom House, &c.....	1,210 56			1,210 56
Carried over.....	100,520 41	8,940 62		109,461 03

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ c's.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	100,520 41	8,940 62		109,461 03
PUBLIC BUILDINGS—Continued.				
Quebec.				
Chamblly Forts.....		1,865 73		1,865 73
Chicoutimi Marine Hospital.....	6,086 50			6,086 50
Hull Post Office, Custom House, &c.....	7,621 44			7,621 44
Lévis Fortifications.....		6,868 00		6,868 00
do Immigrant Building, Wharf and Site.....	2 45			2 45
Montreal Civil Service Examination Office.....		42 00		43 00
do Custom House.....	801 28	222 64		1,023 92
do Drill Shed.....	281 20			281 20
do Examining Warehouse.....	190 09	1,072 05		1,262 05
do Immigrant Shed.....		564 50		564 50
do Inland Revenue Offices.....	12,495 80			12,495 80
do Museum.....		29 60		29 60
do Post Office.....	3,840 72	121 16		3,961 88
Quebec Artillery Barracks.....		1,016 37		1,016 37
do Cartridge Factory.....	5,609 40			5,609 40
do Citadel.....	21,148 48			21,148 48
do do Cliff.....	2,415 10			2,415 10
do do Buildings.....		2,325 50		2,325 50
do Civil Service Examination Office.....		3 00		3 00
do Culler's Office.....		195 50		195 50
do Custom House.....		90 00		90 00
do Dufferin Terrace.....	11,459 82			11,459 82
do Examining Warehouse.....	1,286 07			1,286 07
do Fortifications.....	16,570 54			16,570 54
do Gas Inspector's Office.....		38 47		38 47
do Military Buildings.....		1,358 05		1,358 05
do Post Office.....		55 18		55 18
Sherbrooke Drill Shed, addition.....	573 58			573 58
do Post Office, Custom House, &c.....	11,653 31			11,653 31
St. Helen's Island Military Buildings.....	10,402 17			10,402 17
St. John's Post Office, &c.....	744 37			744 37
St. Regis Custom House.....		8 00		8 00
St. Vincent de Paul Penitentiary.....	19,071 93	60 00		19,131 93
Three Rivers Old Barracks (now Custom House)...	8,359 34	313 39		8,672 73
Ontario.				
Amherstburg Post Office, Custom House, &c.....	2,339 76			2,339 76
Brantford do do.....		250 59		250 59
Belleville do do.....	30,167 27	3 20		30,170 47
Berlin do do.....	20 00			20 00
Bowmanville Drill Shed.....	1,038 00			1,038 00
Brockville Post Office, Custom House, &c.....	3,652 83			3,652 83
Chatham do do.....	8,265 96			8,265 96
Clifton do do.....	1,852 67			1,852 67
Cobourg do do.....	12,105 30			12,105 30
Cornwall do do.....	11,441 01			11,441 01
Gananoqui Custom House.....	1,129 63			1,129 63
Guelph do.....		183 00		183 00
Hamilton Immigrant Building.....	2,545 94			2,545 94
do Post Office, Custom House, &c.....	32,059 95	431 50		32,491 45
Kingston Civil Service Examination Office.....		42 51		42 51
do Custom House.....		1,629 70		1,629 70
do Fortifications and Military Buildings.....		1,852 59		1,852 59
Carried over.....	347,752 23	29,593 85		377,336 08

## APPENDIX No. 1.—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	347,752 23	29,583 85		377,336 08
PUBLIC BUILDINGS—Continued.				
Ontario—Concluded.				
Kingston Inland Revenue Office.....		239 50		239 50
do Military College .....		6,133 84		6,133 84
do Penitentiary.....	16,936 46			16,936 46
do Post Office.....		435 82		435 82
London Custom House.....		766 76		766 76
do Military Buildings.....		1,358 91		1,358 91
do Post Office.....	7,459 73			7,459 73
Niagara Barracks.....		876 44		876 44
Ottawa Drill Shed.....	1,036 40	54 40		1,090 80
do Geological Museum.....		1,343 22		1,343 22
do Nepean Point.....		249 25		249 25
do Post Office.....		676 82		676 82
do Public Buildings:—				
Exit from galleries .....	\$4,999 99			
Protection against fire.....	798 90			
	5,798 89	120,826 66		126,625 55
do Public Buildings (Wellington Street).....	70,419 95			70,419 95
do do Gas.....		19,331 60		19,331 60
do do Grounds.....		10,078 20		10,078 20
do do Heating.....		49,930 07		49,930 07
do do Removal of Snow.....		439 15		439 15
do do Telephonic Service.....	2,000 00	422 50		2,422 50
do do Ventilation.....	1,061 61			1,061 61
do do Water.....		14,881 73		14,881 73
do Supreme Court.....		1,029 43		1,029 43
Point Edward Cattle Quarantine Station.....	6,014 49			6,014 49
Port Hope Post Office, &c.....	5,075 89			5,075 89
Prescott Fort Wellington Barracks.....		617 60		617 60
do Inland Revenue Office.....		69 00		69 00
Rideau Hall.....		31,222 86		31,222 86
do Allowance Fuel and Light.....		8,000 00		8,000 00
do Removal of Snow.....		379 15		379 15
Sarnia Immigrant Building.....	1,170 50			1,170 50
St. Catharines Post Office, Custom House, &c.....	20,667 23			20,667 23
Stratford do do.....	22,177 98			22,177 98
St. Thomas Drill Shed.....	2,844 86			2,844 86
do Post Office, &c.....	9,526 36			9,526 36
Toronto Assistant Receiver General's Office (Old Post Office Building).....	1,475 00			1,475 00
do Custom House.....		280 11		280 11
do Drill Shed.....		343 80		120 00
do Examining Warehouse.....		1,598 55		1,598 55
do Forts (Old and New).....		1,682 72		1,682 72
do Immigrant Shed.....		235 05		235 05
do Inland Revenue Office (Old Post Office Building).....		23 51		23 51
do Post Office.....		242 85		242 85
Windsor do.....		337 35		337 35
Disputed Territory.				
Prince Arthur's Landing Immigration Building .....	2,043 50			2,043 50
Rat Portage Jail.....		20 10		20 10
Carried over.....	523,461 08	200,248 40	103,465 40	827,174 88

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	522,461 08	200,248 40	103,465 40	827,174 88
<b>PUBLIC BUILDINGS—Continued.</b>				
<i>Manitoba.</i>				
Brandon Immigration Shed.....	11,087 92			11,087 92
Emerson do .....		205 85		205 85
Qu'Appelle do .....	10,853 40			10,853 40
Stony Mountain Penitentiary.....	28,498 00	20 00		28,518 00
Winnipeg Architect's Office.....		750 05		750 05
do Assistant Receiver General's Office.....		405 66		405 66
do Civil Service Examination Office.....		15 00		15 00
do Custom House .....		260 00		260 00
do Dominion Lands Office.....		2,286 75		2,286 75
do Fort Osborne Barracks .....		1,412 52		1,412 52
do Immigrant Shed.....	842 90	73 20		916 10
do Lieutenant Governor's Residence.....	31,797 12		rental 2,000	33,797 12
do Parliament Building.....	22,999 66			22,999 66
do Post Office (Old) .....	5,398 79			5,398 79
do do (New) .....	5,959 88			5,959 88
<i>North-West Territories.</i>				
Regina Public Buildings.....	6,330 13			6,330 13
Public Buildings Generally.....	1,482 14			1,482 14
<i>British Columbia.</i>				
Nanaimo Post Office, &c.....	10,037 28			10,037 28
New Westminster Penitentiary.....	2,031 77			2,031 77
do Post Office, Custom House, &c.....	14,451 75			14,451 75
do Public Buildings.....		171 25		171 25
Victoria Batteries.....		748 87		748 87
do Post Office.....		217 92		217 92
<b>SALARIES OF ENGINEERS, FIREMEN, CARETAKERS, &amp;c.</b>				
<i>Nova Scotia.</i>				
Halifax Dominion Building .....	\$ 421 20			
do Penitentiary .....	450 00			
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building ...	553 06			
<i>New Brunswick.</i>				
Dorchester Penitentiary .....	220 00			
Fredericton Post Office, &c.....	433 29			
St. John Custom House .....	1,125 00			
do Penitentiary.....	487 50			
do Post Office.....	951 50			
Carried over.....	4,641 55	675,231 82	206,815 47	120,252 42
				987,512 69

## APPENDIX [No. 1.—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	675,231 82	206,815 47	105,465 40	987,512 69
PUBLIC BUILDINGS—Continued.				
SALARIES OF ENGINEERS, FIREMEN, &c.—Concluded.				
Forward .....	\$ 4,641 55			
<i>Quebec.</i>				
Montreal Custom House.....	1,040 00			
do Examining Warehouse.....	848 50			
do Inland Revenue Office.....	420 00			
do Post Office.....	720 00			
St. John's Post Office .....	281 17			
Three Rivers Custom House.....	206 25			
<i>Ontario.</i>				
Brantford Post Office.....	6 0 00			
Kingston Military College.....	1,320 00			
do Penitentiary .....	110 00			
London Custom House.....	600 00			
Toronto Custom House.....	955 79			
do Examining Warehouse.....	468 34			
do Inland Revenue Office.....	320 00			
do Post Office.....	1,165 34			
Stratford Post Office.....	90 00			
Windsor do .....	1,000 08			
			14,787 02	14,787 02
HEATING DOMINION BUILDINGS.				
<i>Nova Scotia.</i>				
Halifax Dominion Building (Custom House).....	166 49			
Pictou Custom House.....	62 85			
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building (Custom House).....	202 72			
<i>New Brunswick.</i>				
Fredericton Custom House .....	462 65			
St. John do .....	1,443 21			
<i>Quebec.</i>				
Montreal Custom House.....	3,098 46			
Quebec do .....	1,249 25			
St. John's do .....	75 44			
Three Rivers do .....	253 54			
Carried over .....	\$ 7,014 61	675,231 82	206,815 47	120,252 42
				1,002,299 71

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward .....	675,231 82	206,815 47	120,252 42	1,002 299 71
<b>PUBLIC BUILDINGS—Concluded.</b>				
<b>HEATING DOMINION BUILDINGS.—Concluded.</b>				
Forward .....	\$7,014 61			
<i>Ontario.</i>				
Brantford Custom House.....	76 18			
Guelph do .....	78 89			
Hamilton do .....	354 50			
Kingston do .....	529 74			
London do .....	511 65			
Toronto do .....	950 70			
Windsor do .....	251 41			
<i>Manitoba.</i>				
Winnipeg Custom House.....	880 00			
<i>British Columbia.</i>				
Victoria Custom House .....	92 00		10,7 9 63	10,739 63
<b>HARBOURS AND RIVERS.</b>				
<i>Nova Scotia.</i>				
Annapolis Pier.....	15,000 00			15,000 00
Arisaig Pier .....	1,500 00			1,500 00
Bear River.....	79 25			79 25
Benacadie Pond.....	4,029 70			4,029 70
Cape St. Mary.....	2,499 47			2,499 47
Cheverie .....	4,997 97			4,997 97
Coffin's Island.....	2,099 95			2,099 95
Cow Bay .....	3,000 00			3,000 00
Digby Pier.....	4,043 46			4,043 46
Eagle Head.....	2,499 25			2,499 25
East Bay .....	1,798 92			1,798 92
Hampton .....	727 63			727 63
Herring Cove or Brooklyn.....		461 75		461 75
Ingonish South.....		93 02		93 02
Jordan Bay .....	5,046 12			5,046 12
Liverpool Breakwater.....	2,265 27			2,265 27
Mabou Harbour.....	3,394 61			3,394 61
Main-à-Dieu .....	2,858 79			2,858 79
Meteghan Cove.....	500 00			500 00
do River .....	3,000 00			3,000 00
North Sydney Harbour.....	2,999 52			2,999 52
Parrsboro' Pier .....		147 43		147 43
do or Partridge Island River .....	2,500 00			2,500 00
Pickett's Pier.....	1,200 00			1,200 00
Pictou Island.....	1,246 92			1,246 92
Port Hood Pier.....	3,996 65			3,996 65
Port Lorne (formerly Port Williams) .....	1,028 54			1,028 54
Ragged Pond.....	253 18			253 18
Saw Pit Pier.....		146 04		146 04
Silver Point Pier .....		99 97		99 97
Carried over.....	747,797 05	207,763 68	130,992 10	1,086,552 83

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	747,797 05	207,763 68	130,992 10	1,086,552 83
<b>HARBOURS AND RIVERS—Continued.</b>				
<i>Nova Scotia—Concluded.</i>				
St. Mary's River.....	1,997 67			1 997 67
Summerville Pier.....		599 68		599 68
Trout Cove.....		249 17		249 17
White Point Pier.....		1,997 93		1,997 98
Yarmouth Harbour.....	3,299 28			3,299 28
<i>Prince Edward Island.</i>				
Campbell's Cove.....	5,020 01			5,020 04
Casumpec.....	190 82			190 82
Colville Bay, Souris East....	3,647 71			3,647 71
Malpeque Breakwater.....		59 95		59 95
Miminegash do.....	1,437 25			1,437 25
Murray Harbour, South River.....	5,000 00			5,000 00
Rustico Harbour.....	9,677 30			9,677 30
South West River, New London.....	2,511 42			2,511 42
St. Peter's Bay.....	1,509 72			1,509 72
Tignish.....	4,110 00			4,110 00
<i>New Brunswick.</i>				
Campobello, Wilson's Beach.....	500 00			500 00
Caraquette.....	54 34			54 34
Cocagne.....	4,074 78			4,074 78
Courteney Bay—marking channel.....	500 00			500 00
Madawaska River.....	600 00			600 00
Pointe du Chêne (Shediac).....	1,853 00			1,853 00
Quaco Harbour.....	12,460 00			12,460 00
Richibucto Harbour.....		999 55		999 55
Rocher Bay Breakwater.....	4 52			4 52
Shippagan Harbour.....	3,507 63			3,507 63
St. Andrew's Harbour.....	1,930 00			1,930 00
St. John Harbour.....	30,735 26			30,735 26
do River.....	3,458 87			3,458 87
do do Oromocto.....		793 83		793 83
Tobique River.....	788 41			788 41
Tynemouth or Ten Mile Creek Harbour.....	1,500 00			1,500 00
<b>MARITIME PROVINCES GENERALLY.</b>				
Harbours and Rivers Generally.....		2,525 49		2,525 49
<i>Quebec.</i>				
Anse du Portage Slip and Wharf.....	780 99			780 99
Anse St. Jean Pier.....	1,443 62			1,443 62
Bagotville (St. Alphonse) Pier.....	4,307 40			4,307 40
Baie St. Paul Pier.....	13,384 85			13,384 85
Cap à l'Aigle Pier.....	250 00			250 00
Carleton Pier.....	2,394 00			2,394 00
Cedars do.....		9 85		9 85
Carried over.....	870,725 93	214,999 18	130,992 10	1,216,717 21

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
Brought forward .....	870,725 93	214,999 18	130,992 10	1,216,717 21
HARBOURS AND RIVERS—Continued.				
Quebec—Concluded.				
Chenal du Moine Pier.....	36 93			36 93
Chicoutimi Pier.....		150 85		150 85
Étang du Nord, Magdalen Islands.....	11,518 91			11,518 91
Grosse Ile Harbour.....	1,718 27			1,718 27
Harbours Generally.....	832 69			832 69
Ile aux Coudres, Havre Laprairie.....	250 00			250 00
Ile aux Grues, Havre Pointe aux Pins.....	9,079 99			9,079 99
Les Ecureuils Pier.....	434 45			434 45
Les Eboulements Pier.....		250 00		250 00
L'Islet Pier.....		124 03		124 03
Malbaie Pier.....		448 06		448 06
Matane do.....	4,159 36			4,159 36
Montreal Harbour.....		210 00		210 00
New Carlisle Pier.....	5,973 35			5,973 35
Piopolis Pier, Lake Megantic.....	721 60			721 60
Port au Saumon, River St. Lawrence.....	462 08			462 08
Philipsburgh Harbour, Mississiquoi Bay.....	185 75			185 75
Piers below Quebec, generally.....		6,058 72		6,058 72
Quebec Harbour.....			16 00	16 00
do Marine Hospital Wharves.....	3,298 77			3,298 77
Rivière Blanche Pier.....	2,156 68			2,156 68
do du Lièvre.....	867 16			867 16
do du Loup ( <i>en bas</i> ) Pier.....		1,040 60		1,040 60
do Nicolet, Harbour of Refuge.....	10,474 12			10,474 12
do Ouelle Pier.....		2,500 02		2,500 02
do Ottawa, Improvement between Bristol and Portage du Fort.....	2,945 05			2,945 05
do Richelieu, below St. Ours Village.....	1,200 80			1,200 80
do Saguenay, Channel below Chicoutimi.....	4,990 32			4,990 32
do do Improvement of la Grande Dé- charge, Lake St. John.....	2,128 22			2,128 22
do St. David Ice Piers.....	1,000 00			1,000 00
do St. Francis.....	1,327 37			1,327 37
River St. Lawrence—Channel Montreal to Lake St. Francis.....	1,223 85			1,223 85
do Hydrographic survey, Que- bec to Cap à la Roche....	7,518 07			7,518 07
do Removal of chains and anchors.....	277 46			277 46
do Yamaska.....	17,693 20			17,693 20
St. Agnès Pier, Lake Megantic.....	4,649 30			4,649 30
St. François (Ile d'Orleans) Pier.....	4,047 61			4,047 61
St. Michel Pier.....		262 66		262 66
St. Thomas (Montmagny) Pier.....	500 00			500 00
St. Timothée Pier.....	1,841 46			1,841 46
St. Zotique Pier.....	3,479 74			3,479 74
Tadoussac Fish Dams.....		132 37		132 37
Three Rivers Harbour.....	16,879 38			16,879 38
Trois Pistoles Pier.....	2,545 59			2,545 59
Yamachiche Pier.....	1,809 68			1,809 68
Carried over.....	998,953 14	226,176 49	131,008 10	1,356,137 73

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	998,953 14	226,176 49	131,008 10	1,359,137 73
<b>HARBOURS AND RIVERS—Continued.</b>				
<i>Ontario.</i>				
Cobourg Harbour.....	9,8 9 51	.....	.....	9,849 51
Collingwood Harbour.....	23,932 55	.....	.....	23,932 55
Consecon do .....	1,929 25	.....	.....	1,929 25
Goderich do .....	\$ 6,035 04	.....	.....	.....
do do Award, S. Platt. 21,188 34	.....	.....	.....	.....
	27,223 38	.....	.....	27,223 38
Harbours and Rivers generally .....	4,552 45	.....	.....	4,552 45
Kincardine Harbour.....	5,141 83	.....	.....	5,141 83
Kingston do .....	6,308 49	.....	.....	6 308 49
Kingsville do .....	4,329 14	.....	.....	4,329 14
Little Current.....	9,601 68	.....	.....	9,601 68
Little Nation River (examination and removal of obstructions) .....	235 66	.....	.....	235 66
Meaford Harbour.....	4,749 95	.....	.....	4,749 95
Napanee River.....	4,963 50	.....	.....	4,963 50
Neebish Rapids .....	1,257 01	.....	.....	1,257 01
Newcastle Harbour .....	1,714 41	.....	.....	1,714 41
Ottawa River (improving channel opposite Hawkesbury) .....	1,372 41	.....	.....	1,372 41
Owen Sound Harbour .....	12,345 94	.....	.....	12,345 94
Peterborough do .....	887 48	.....	.....	887 48
Port Albert, Lake Huron.....	1,724 53	.....	.....	1,724 53
Port Elgin Harbour, Lake Huron .....	10,852 98	.....	.....	10,852 98
Port Hope do .....	14,513 59	.....	.....	14,513 59
Portsmouth do .....	1,998 50	.....	.....	1,998 50
Rondeau do .....	4,534 28	.....	.....	4,534 28
Thornbury do .....	10,766 39	.....	.....	10,766 39
Toronto do .....	49,417 26	.....	.....	49,417 26
Wellington do .....	160 69	.....	.....	160 69
Whitby Harbour.....	1,672 00	.....	.....	1,672 00
Warton do .....	33,891 00	.....	.....	33,891 00
<i>Manitoba.</i>				
Assiniboine River.....	7,244 13	.....	.....	7,244 13
Harbours Generally.....	42 00	.....	.....	42 00
Red River (mouth of river).....	1,368 31	.....	.....	1,368 31
Waterhen River (examination and removal of boulders).....	4,999 63	.....	.....	4,999 63
<i>North-West Territories.</i>				
Saskatchewan River.....	5,823 23	.....	.....	5,823 23
<i>British Columbia.</i>				
Fraser River .....	2,059 64	.....	.....	2,059 64
Harbours Generally .....	48 00	.....	.....	48 00
Naas River .....	210 98	.....	.....	210 98
Carried over. ....	1,270,674 92	226,176 49	131,008 10	1,627,859 51

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	1,270,674 92	226,176 49	131,008 10	1,627,859 51
HARBOURS AND RIVERS—Conclude'.				
<i>British Columbia—Concluded.</i>				
Skeena River .....	751 12	.....	.....	751 12
HARBOURS AND RIVERS GENERALLY.....				
			6,160 40	6,160 40
DREDGES, construction, dredging plant.....	7,578 11	.....	.....	7,578 11
do repairs.....	.....	21,983 66	.....	21,983 66
DREDGING.				
<i>Nova Scotia.</i>				
Caledonia.....	5,920 62			
Digby .....	1,091 64			
Glace Bay.....	3,446 94			
Grand Goulet.....	5,408 06			
Halifax Railway Terminus ..	5,088 25			
Mabou .....	844 43			
Middle River .....	638 52			
Pictou Acadia Coal Comp'y				
Wharf .....	863 73			
Pictou Public Wharf .....	4,211 11			
River Bourgeois. ....	4,338 56			
River John.....	581 33			
Sherbrooke .....	119 96			
Tatamagouche .....	4,055 77			
	36,618 93			
<i>Prince Edward Island.</i>				
Murray Harbour.....	937 94			
Rocky Point .....	3,386 82			
	4,314 76			
<i>New Brunswick.</i>				
Buctouche.....	2,051 37			
Cocagne .....	3,406 94			
Grand Lake, McMan's Cove	3,578 64			
Pointe du Chêne.....	2,039 37			
	11,076 32			
Generally .....	132 44			
Total, Maritime Provinces.....	52,132 44			
Quebec—				
Laprairie Harbour.....	4,878 66			
River Beaudet .....	2,186 07			
do Richelieu .....	39 29			
do St. Lawrence				
(Longue Pointe				
to Boucherville) ..	9,180 87			
do St. Placide .....	5,661 08			
Generally.....	3,728 29			
	25,074 26			
Ontario—				
Gananoqui.....	1,998 31			
Hawkesbury (River Ot-				
tawa) .....	406 95			
Carried over	2,405 26	77,206 70	1,279,004 15	248,160 15
			137,168 50	1,664,332 80

## APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward..... 77,206 70	1,279,004 15	248,160 15	137,168 50	1,664,332 80
<b>DREDGING—Concluded.</b>				
<b>Ontario—Concluded.</b>				
Forward .....	2,405 26			
Rivière au Sable.....	892 13			
Salmon River .....	240 00			
Thames do .....	8,081 75			
Trenton Harbour.....	500 00			
Generally.....	3,895 70			
	16,017 84			
British Columbia—				
Victoria Harbour.....	7,301 08			
DREDGING GENERALLY .....	1 754 27	102,279 89		102,279 89
<b>SLIDES AND BOOMS.</b>				
Saguenay District.....	2,065 05	2 379 07	1,033 63	5,477 80
St Maurice do .....	698 23	5,524 73	15,460 92	21,683 88
Ottawa do .....			22,874 19	22,874 19
	<b>Repairs.</b>			
Ottawa River Slides.....	12,955 44	53 10		53 10
South Nation do .....	700 00			700 00
Gatineau River Slides.....	324 92			
Madawaska do .....	6,599 07			
Black do .....	3,113 36			
Petewawa do .....	1,543 49			
Coulonge River.....	1,014 45			
Dumoine do .....	615 68			
		26,166 41		26,166 41
New Castle District.....		4,127 61	1,077 36	5,204 97
Belœil Piers and Booms.....			90 90	90 90
River Richelieu, Maintenance of Buoys.....			457 50	457 50
<b>ROADS AND BRIDGES</b>				
Des Joachims Bridge .....	323 28			323 28
Ottawa Union Suspension Bridge.....		1,189 01		1,189 01
Portage du Fort Bridge.....		100 00		100 00
Temiscouata Road .....		2,454 54		2,454 54
<b>TELEGRAPH LINES.</b>				
Telegraph Lines North Shore River St. Lawrence.	24,271 11			24,272 11
do Maritime Provinces, Semaphores.	1,528 63			1,528 63
do Manitoba and North-West Ter...	49,449 05			49,449 05
Telegraph Service generally .....	9,534 60			9,534 60
<b>MISCELLANEOUS.</b>				
Surveys and Inspections.....			29,829 98	29,829 98
Arbitrations and Awards.....			3,338 90	3,338 90
Monument to late Sir G. E. Cartier, Bart.....	1,319 13			1,319 13
Telegraph Lines, British Columbia .....			30,505 89	30,505 89
Land and Cable Telegraph Lines, Lower St. Lawrence and Maritime Provinces.....			12,425 42	12,425 42
Carried over .....	1,471,227 24	290,101 53	254,263 24	2,015,592 00

APPENDIX No. 1—*Concluded.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	1,471,227 24	290,101 52	254,263 24	2,015,592 00
<b>MISCELLANEOUS—<i>Concluded.</i></b>				
Telegraph and Signal Service generally.....			8,955 83	8,955 83
Agent and Contingencies, British Columbia.....			2,811 32	2,811 32
O. Dionne, (detailed statement of Expenditure on Public Works of the Dominion, from 1867 to 1882).....			1,500 00	1,500 00
Widows of J. Meharg and P. Cooney—gratuity....			500 00	500 00
Totals.....	1,471,227 24	290,101 52	268,030 39	2,029,359 15
<b>WORKS AUTHORIZED BY SPECIAL ACTS OF PARLIAMENT.</b>				
St. Lawrence River, deepening between Quebec and Montreal.....	280,000 00			280,000 00
Quebec Harbour Improvement .....	66,540 00			66,540 00
Lévis Graving Dock. ....	75,000 00			75,000 00
Esquimalt Graving Dock.....	Nil.			
Grand Totals .....	1,892,767 24	290,101 52	268,030 39	2,450,899 15

O. DIONNE,  
*Accountant.*

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, November, 1883.

APPENDIX No. 2.

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REPORT

ON

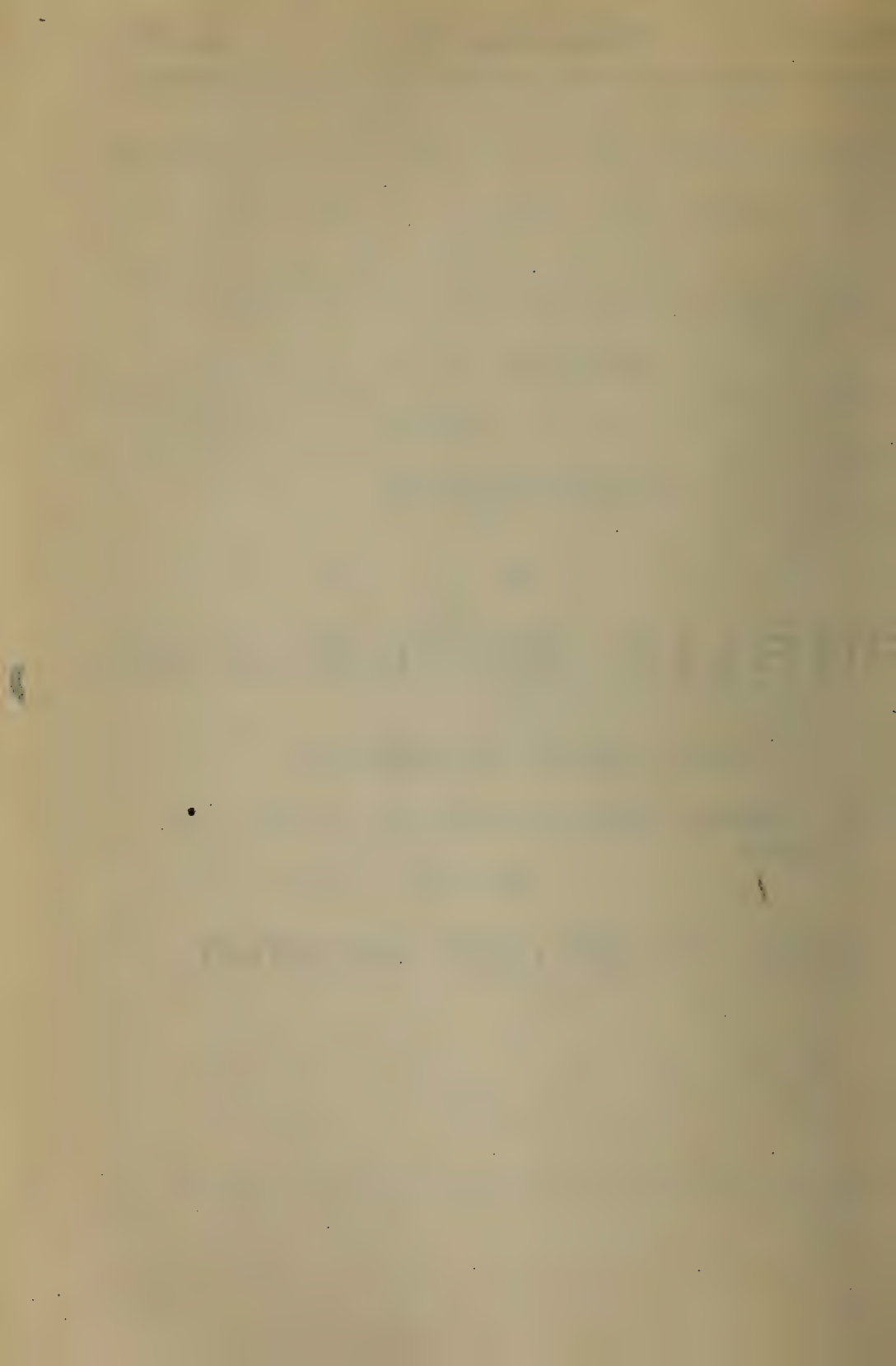
PUBLIC BUILDINGS

THROUGHOUT THE DOMINION,

FOR FISCAL YEAR ENDED 30<sup>TH</sup> JUNE, 1883.

BY

THOS. FULLER, CHIEF ARCHITECT.



## APPENDIX No. 2.

## REPORT OF THE CHIEF ARCHITECT.

(Ref. No. 39,811.)

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 15th July, 1883.

SIR,—I have the honour to submit a General Report upon construction and repairs in connection with the various public buildings under the control of this Department during the fiscal year ended 30th June, 1883.

THOS. FULLER,  
*Chief Architect.*F. H. ENNIS, Esq.,  
Secretary Dept. Public Works.

## PROVINCE OF NOVA SCOTIA.

## PICTOU.

## MARINE HOSPITAL.

The contract for this building, which was described in my last report, was awarded 14th August, 1882; the works have been carried on satisfactorily, and will probably be completed and the building ready for occupation by the beginning of 1884.

Plans, &amp;c., prepared by this Department.

## SYDNEY, C.B.

## QUARANTINE STATION.

A contract was entered into, February 23rd, 1883, for the following five buildings which are now in course of erection, viz:—

*Superintendent's House.*—A wooden building, two stories and basement, 33 feet 6 inches by 27 feet.

*Two Hospitals.*—Wooden one story buildings, each having a ward 29 by 21 feet, a wing 24 by 12 feet for surgery and kitchen, and a 12 by 12 feet wing for nurses room in the rear.

*Wash House.*—A one-story wooden building, 21 by 19 feet, with boiler, rain water tank, &c.

*Fuel Shed.*—A wooden building 39 by 16 feet.

Plans, &amp;c., prepared by this Department.

Clerk of Works, Mr. J. K. Macleod.

Contractor, Mr. Hugh McDonald.

## NEW GLASGOW.

## PUBLIC BUILDING.

A site has been secured on the corner of Dalhousie and Provost streets and the plans and specification for the erection are now being prepared in this Department.

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TRURO.

POST OFFICE, CUSTOM HOUSE AND SAVINGS BANK.

A site has been procured and I have received instructions for the preparation of plans for a building for the above local offices.

## WINDSOR.

POST OFFICE, CUSTOM HOUSE, &amp;c.

A site was purchased 13th January, 1883, on Gerrish street, between Gray and Water streets, and plans, &c., are in course of preparation in this Department for the building.

## AMHERST.

PUBLIC BUILDING.

A site has been offered on what is known as the Court House Lot.

## ANTIGONISH.

PUBLIC BUILDING.

The Dominion Government purchased the St. François Xavier College, Antigonish, a two story wooden building on the corner of College and Main streets, measuring 48 by 32 feet, and which is now in course of being altered to suit the requirements of the local Government offices.

Plans, &c., prepared by this Department.

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PRINCE EDWARD ISLAND.

SUMMERSIDE.

PUBLIC BUILDING.

A site was obtained having a frontage of 61 feet on Fitzroy and 131 feet on Tanner Streets, and I have received instructions to prepare the necessary plans and specifications for the erection of this building.

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NEW BRUNSWICK.

ST. JOHN.

NEW MARINE HOSPITAL.

This building which was described in my report for the fiscal year 1881-82, has been carried on continuously, although not as expeditiously as anticipated, and is expected to be completed during 1883-84.

Drawings and specifications for a hot water heating apparatus are in course of preparation.

Plans prepared by D. E. Dunham, Architect.

Clerk of Works, Mr. James Sullivan.

Contractor, Mr. William Lawlor.

## CARLETON (ST JOHN.)

## POST OFFICE.

A site was procured on Union street and a contract entered into on the 18th March, 1883, for the erection of this building, which will have stone foundations and brick walls with stone strings, sills and lintels to windows. The floors and roof will be of wood. The main portion will have two stories with a frontage of 40 feet on Union street, and a depth of 19 feet; the rear portion will be one story, 41 by 23 feet.

The basement will be for storage purposes; the ground floor for the Post Office and the first floor for a caretaker.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. D. E. Dunham.

Clerk of Works, Mr. C. F. Tilley.

Contractors, Messrs. Causey, Bond and Milden.

## MONCTON.

## POST OFFICE, CUSTOM HOUSE, &amp;c.

A site has been secured on the corner of Main and Telegraph streets. Drawings are in course of preparation, and it is expected that the contract will be awarded in time to allow of the foundations being put in this autumn.

## DORCHESTER.

## GENERAL PENITENTIARY FOR THE MARITIME PROVINCES.

Owing to the failure of T. Macmanus & Sons to carry on their contract, tenders were invited for the completion of the works, and the contract was awarded to Mr. D. A. Duffy, on the 23rd June, 1883.

Preparations are being made for the construction of an additional tank and tank-house, to contain 200,000 gallons, adjoining that previously erected.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. G. Ernest Fairweather.

Clerk of Works, Mr. John E. Turnbull.

Superintendent of Masonry, Mr. H. J. McGrath.

Contractor, Mr. D. A. Duffy.

## SUSSEX.

## POST OFFICE, CUSTOM HOUSE, &amp;c.

The construction of this building, which was fully described in my last report, is now completed; and it is supplied with a hot air apparatus.

A contract has been entered into for the Post Office fittings and for grading; and the necessary furniture is being supplied, so that in all probability it will be occupied this autumn.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. G. E. Fairweather.

Clerk of Works, Mr. Thomas Heffer.

Contractor, Mr. William Toms.

## WOODSTOCK.

## POST OFFICE, CUSTOM HOUSE, &amp;c.

A contract was entered into 16th March, 1883, for this building, which is situated at the corner of Regent and Main Streets. It will have stone foundations and brick walls with cut stone plinths, string courses, cornice, &c., the roof and floors of wood, the former covered with slates.

There will be a main portion 37 by 55 feet, exclusive of a front projection 19 by 7 feet, having two stories, basement and attic, and a one story addition 46 by 18 feet for Inland Revenue, Weights and Measures, and lavatories.

The basement will be devoted to heating apparatus and cellarage; the ground floor of the main portion to the Post-Office, and the first floor to the Customs Department and Savings Bank.

Drawings and specifications prepared by this Department.

Superintending Architect, Mr. D. E. Dunham.

Clerk of Works, Mr. J. F. Fletcher.

Contractor, Mr. J. Limerick.

## PROVINCE OF QUEBEC.

### QUEBEC.

#### CITADEL.

*New Works.*—General repairs, alterations, renewals, &c., have been carried out during the past fiscal year, as follows:—

*Richmond Bastion.*—Wooden roof over casemates 33 to 44, and repairs to doors and windows in casemates.

*Rebuilding Walls.*—Portions of wall at Chain Gate, Dalhousie Bastion and Military Store.

*Re-pointing and Repairing Walls.*—Pointing walls, ramparts of Citadel generally, walls of officers quarters and latrines, repairing gun platforms; repairs at King's Bastion, repairing chimneys, opening, repairing and cleaning drains.

*Fencing and Sidewalk.*—Road to Citadel.

*Roofing.*—Guard House and Armoury (galvanized iron).

Works executed under the immediate superintendence of this Department.

Superintendent, Mr. J. Shearer.

Clerk of Works, Mr. P. Mahon.

#### FORTIFICATIONS.

Rebuilding ramparts at Hope Gate, new walls at Kent and St. John Gates; drain Dufferin Terrace; taking down and rebuilding part of wall between St. Louis and Kent Gates; rebuilding wall below St. John Gate; repairing drains and embankments.

Works carried out under the immediate superintendence of this Department.

Superintendent, Mr. J. Shearer.

Clerk of Works, Mr. Jos. Guillott.

#### CARTRIDGE FACTORY.

Necessary shafting has been placed, a dry house and shooting sheds have been erected, targets have been erected, and a boiler and heating apparatus provided and fixed.

Repairs have been executed to the Manager's and Foreman's quarters.

Works carried out under the supervision of this Department.

#### WALL UNDER DUFFERIN TERRACE.

The works previously reported on have been carried on to completion.

Works executed under the immediate superintendence of this Department.

## CHAMPLAIN STREET CLIFF.

Plans and specifications for the continuation of this wall are prepared, and tenders will be soon called for.

## DRILL SHED.

Instructions have been received to have drawings prepared for this structure.

## EXAMINING WAREHOUSE.

Plans were prepared and a contract was entered into 15th March, 1883, for the construction of this building on the Government property in the rear of the Custom House.

The building is to be 149 feet by 68 feet, of two stories with an attic over central portion.

In addition to storage room there are four offices, boiler room, water closets, &c., on the ground floor; on the first floor, storage room, four offices and a vault; and in the attic the caretaker's quarters.

Piles are to be driven to support the various walls, which are to be of stone.

The pilasters, cornice, pediment, &c., to principal doorway, and the plinth, window jambs and archstones are to be of cut stone, and the walling generally to be random coursed work.

The roof and floors are to be wood, the roof covered with galvanized iron. The wooden run-beams of ground and first floor are supported by iron columns.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Joseph Lachance.

Contractor, Mr. Denis O'Brien.

## LEVIS.

## FORTS.

The roofs to Forts Nos. 2 and 3, mentioned in my last report, have been completed.

Essential minor repairs have been executed at Forts 1, 2 and 3, and at Engineers Camp.

Plans, &c., prepared and work supervised by this Department.

Clerk of Works, Mr. Jacques Jobin.

Contractor, Mr. Nicholas Piton.

## CHICOUTIMI.

## MARINE HOSPITAL.

The construction of this building, which was described in my last year's report, is now nearly completed, and a contract for a heating apparatus has been entered into.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. F. X. Berlinquet.

Clerk of Works, Mr. T. Boily.

Contractor, Mr. Wm. Warren.

## THREE RIVERS.

## OLD BARRACKS.

The works referred to in my last year's Report in connection with this building, are completed, and the building occupied.

The grounds have been graded and fenced.

Superintending Architect, Mr. O. Z. Hamel.  
Clerk of Works, Mr. E. Verrett.  
Contractors, Messrs. Pothier and Dussault.

#### OLD CUSTOM HOUSE.

Plans have been prepared, and arrangements will shortly be made for the alteration of and additions to this building, to adapt it for Post Office purposes.

Plans, &c., prepared by this Department.  
Superintending Architect, Mr. O. Z. Hamel.

#### MONTREAL.

##### CUSTOM HOUSE.

That portion of the building previously used as an Examining Warehouse has been changed into offices, and all the occupied portions of the building cleaned and painted; the existing furniture throughout repaired and partially renewed, and necessary new furniture supplied.

Superintending Architect, Mr. James Nelson.  
Clerk of Works, Mr. C. Dandelin.  
Contractor, Mr. Moise Martin.

##### EXAMINING WAREHOUSE.

Instructions have been received to prepare plans, &c., for a one story addition to this building for storage of heavy hardware; and for the construction of iron and brick floors in place of those existing which have become dangerous through decay.

Plans, &c., prepared by Mr. James Nelson, Architect.

##### INLAND REVENUE OFFICES.

Since my last report the works therein described have been completed; a hot water apparatus has been contracted for and fitted up, and the building occupied.

Where suitable, the old furniture is being repaired, and the necessary new furniture supplied.

Superintending Architect, Mr. Alphonse Raza.  
Clerk of Works, Mr. C. Dandelin.  
Contractor for the building, Mr. H. J. Beemer.  
Contractor for heating apparatus, Mr. R. Mitchell.

##### DRILL SHED.

Plans, specifications, &c., are in course of preparation for the re-roofing, &c., of this structure.

#### ST. HELEN'S ISLAND.

##### MILITARY BUILDINGS.

The works mentioned in my last report were placed under contract and carried on to completion.

Superintending Architect, Mr. Alphonse Raza.  
Clerk of Works, Mr. A. Dubuc.  
Contractor, Mr. Wm. McDonald.

## ST. VINCENT DE PAUL.

## PENITENTIARY.

The stone dining hall is in course of erection, 127 by 63 feet, arranged to admit of future extension. The dining hall will occupy the principal floor, the basement will contain a kitchen, stores, wash-house and baths, while the uppermost story will be used as a drying room. The walls are to be lined with brick and the floors constructed of iron joists, and brick arches covered with oak flooring.

An oven being required, an addition 30 by 12 feet was made to the bake-house.

A powder magazine of stone lined with brick was erected at the quarry.

A wooden one and a-half story building 30 by 30 feet for the offices of Store-keeper and Clerk of Works, was erected inside the boundary wall.

A wooden stable and carriage house 30 by 18 feet for the Deputy Warden's use, has been erected fifty yards outside the boundary wall; and, at the same distance, a wooden implement shed 76 by 31 feet.

The main drain now in progress runs north 750 yards, terminating in a creek which empties into the Ottawa River. The excavation for 149 yards from the prison is rock and the remainder clay.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. John Bowes.

## SHERBROOKE.

## POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

A description of this building is to be found in my report of last year, since when the works have not been carried on as rapidly as desirable or anticipated. It is expected that the building will be closed in this autumn, and will be finished during the coming winter.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. F. X. Berlinguet.

Clerks of Works, Messrs. R. Richards and J. Low.

Contractors, Messrs. Robillard & Murphy.

## HULL.

## POST OFFICE AND INLAND REVENUE OFFICE.

A contract was entered into on the 6th July, 1882, for this building, which I have described in last year's report; since which the works have been carried on steadily, and it is expected that the building will be ready for occupation by the 1st January, 1884.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Joseph Derouin.

Contractor, Mr. Wm. Toms.

## PROVINCE OF ONTARIO.

## OTTAWA.

## PARLIAMENT BUILDING.

In order to provide a safer and more commodious approach for the public to the northern and eastern galleries of the House of Commons, the old staircase was removed and a wider entrance provided, having stone stairs 9 feet in width with a

passage therefrom extended across the court yard to the northern end of the Commons chamber, all of which was constructed with fire proof materials and supported on suitable wrought iron girders.

Two of the Ohio stone columns in the public hall having developed signs of insecurity they were removed and columns of polished granite from Gananoque substituted.

The windows of the upper stages of the angle towers have been widened and fitted with new glazed sashes. Much additional light has thus been obtained and the external appearance of the building greatly improved.

The Reporters gallery was altered in some of its minor details in order to obtain height under it, and a new staircase provided.

To afford additional seats for members and to obviate the inconvenience felt by members from the ingress of fresh air, the passages under the Reporters' Gallery were closed, the platforms continued to the walls and a centre entrance with lobby and double doors constructed immediately in the rear of the Speaker's Chair.

The floor of the corridors around the House of Commons which were much out of repair have been relaid with wood.

Alterations, painting, cleaning, &c., were effected in connection with the Speaker's apartments.

Drawings prepared by and work executed under the superintendence of this Department.

#### EASTERN BLOCK, DEPARTMENTAL BUILDINGS.

Necessary repairs and cleaning have been executed.

Work done under the superintendence of this Department.

#### WESTERN BLOCK, DEPARTMENTAL BUILDINGS.

Cleaning, trifling alterations and necessary repairs have been effected.

Work executed under the superintendence of this Department.

#### ADDITIONAL PUBLIC BUILDINGS, WELLINGTON STREET.

A site has been secured on the south side of Wellington street, extending from Metcalfe to Elgin streets. Plans are in course of preparation, and tenders for the construction will be invited at an early date.

#### PARLIAMENT GROUNDS, &c.

These have been maintained efficiently.

#### MONUMENT TO THE LATE SIR GEORGE E. CARTIER, BART.

In August, 1882, artists were invited, by public advertisement, to submit models for a statue of the late Sir George E. Cartier, Bart., and in January models were received from twenty-one artists. That submitted by Mr. L. P. Hebert obtained the first premium, and a contract with him to furnish a bronze statue was entered into 7th May, 1883.

#### POST OFFICE.

The Money Order and Registered Letter branches have increased to an extent which rendered the enlargement of their offices necessary, the Sparks and Wellington streets entrances were converted into windows, and the public lobby curtailed by taking a portion of each end to provide additional office room.

The Esplanade in front of the building was lowered on the Sparks street side to allow of its use as a drive.

## RIDEAU HALL.

Essential repairs, cleaning, painting, papering and minor alterations have been done to the Government House and the various buildings in connection therewith, under the superintendence of this Department.

## CORNWALL.

## POSTAL, CUSTOMS AND INLAND REVENUE OFFICES.

Drawings, &c., were prepared and a contract for construction entered into on 28th July, 1882.

It consists of two portions (1st) a main building two stories, basement and attic extending 50 feet on Second street by 66 feet on Pitt street with a projection for stairway in rear 24 feet by 12 feet; (2nd), a one story building in rear 78 feet by 22 feet.

The walls are of lime stone with cut quoins, pilasters, jambs, arches, cornices, plinth, chimney, string courses, &c., the filling in being of random coursed rubble; the floors and roof are of wood, the roof of the main building to be covered with slates, and that of the one story building with galvanized iron. The partitions are wood in the main building and brick in the other.

On the basement floor are to be the heating apparatus, fuel, storage and water closets; on the ground floor the local Post Office; on the first floor local Customs and Inland Revenue offices, and in the attic, caretaker's apartments.

There will be fire proof vaults provided for the various departments.

The principal Post Office entrance is to be from Pitt street and the Customs and Inland Revenue on Second street.

The angle bays on Pitt street will project and be carried up as towers capped with pyramidal roofs, the stone work of that on the intersection of the two streets being 28 feet over the main cornice and the other 7 feet. The principal tower is to be arranged for the reception of a clock.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. J. J. Browne.

Clerk of Works, Mr. Wm. Aitcheson.

Contractors, Messrs. Gordon & Ross.

## BROCKVILLE.

## POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

A site having been acquired, a contract for the construction of this building was entered into on the 10th February, 1883.

The main building will have a frontage on Court House Avenue of 67 feet, by a depth of 61 feet, and contain a basement for heating apparatus, a ground floor for the local postal service, a first floor for the Customs and Inland Revenue offices, and an attic for caretaker's apartments. In the rear will be a one story building, 66 feet by 28 feet, for Weights and Measures, Gas Inspection and Examining Warehouse.

The front of the main building and 15 feet of a return at each front angle will be stone, and the remaining walls in both buildings brick on stone foundations and with stone strings, sills and lintels. The stone to be used will be Credit Valley sandstone.

On the front the architraves, jambs, quoins, cornices, copings, string courses, panels are to be of cut stone, the filling to be quarry faced random coursed rubble.

Floors and roofs to be of wood, the latter covered with slates.

Brick safes are to be provided for the various departments.

The main entrance is on Court House Avenue.

Plans, &c., prepared and work supervised by this Department.

Clerk of Works, Mr. George Stacy.

Contractors, Messrs. Tomkins and Crain.

## GANANOQUI.

## CUSTOM HOUSE.

This building is to be constructed on the corner of Main and River streets, near the steamboat landing.

It will be a brick building on a stone foundation with two stories, a partial basement and attic, fronting 37 feet on Main street, and 41 on River street, and having a two story wing in rear 24 by 19 feet.

The floors and roof are of wood.

Plans and specifications prepared and work supervised by this Department.

Clerk of Works, Mr. W. Hogan.

Contractor, Mr. George J. Wilson.

## KINGSTON.

## ROYAL MILITARY COLLEGE.

An addition of two rooms to the Mechanical Engineer's dwelling was contracted for last August, and work is yet in progress.

Various alterations and repairs have been executed at Fort Frederick, Tête de Pont Barracks, and the military works generally.

Superintending Architects, Messrs. Power & Son.

Contractor for the addition, Mr. J. Waddell.

## PENITENTIARY.

A breakwater 200 by 30 feet is in course of construction to form a basin 100 feet square.

The construction of the heating apparatus for the dining hall and workshops is still in progress.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. John Bowes.

## PORT HOPE.

## POST OFFICE, CUSTOM HOUSE, &amp;c.

A contract was entered into May 5th, 1883, and the building is now in course of erection on the corner of Queen and Hector streets.

It is to be rectangular with two stories, a partial basement and an attic; the angle at the intersection of the streets will be carried up as a square brick tower 35 feet above the main cornice and surmounted by a wooden belfry. It will consist of a main portion 80 by 46 feet, and a one story wing 16 by 24 feet in the rear.

The Post Office occupying the ground floor will be entered through the tower, which will form a porch. The entrance for the Customs and Inland Revenue which occupy the first floor, is on Hector street. The one story wing, which contains an Examining Warehouse, Gas Inspection Office and Weights and Measures Offices, is entered from Hector street.

The foundations will be of stone and the walls brick, the plinth course, string courses, window heads, cornice, &c., of cut stone.

Plans, &c., prepared, and work supervised by this Department.

Clerk of Works, Mr. Jos. G. King.

Contractor, Mr. Wm. Toms.

## BELLEVILLE.

## POST OFFICE, CUSTOMS AND INLAND REVENUE OFFICES.

Since my last report a hot water apparatus has been placed in this building, and the work of construction carried on so that all the works will be completed and the building ready for occupation by the coming autumn.

Architect, Mr. R. C. Windeyer.

Clerk of Works, Mr. John Brenton.

Contractors for building, Messrs. Northcott & Alford.

Contractors for Post Office fittings, Mr. P. Forin.

## COBOURG.

## POST OFFICE, CUSTOM HOUSE, &amp;c.

This building, which is situated on the corner of King and Division streets, was purchased 13th December, 1882, and plans are in course of preparation for necessary alterations and additions, to adapt it for the use of local offices of the Post Office, Customs and Inland Revenue Departments.

## TORONTO.

## EXAMINING WAREHOUSE ADDITIONS.

Plans are being prepared for an addition to the existing building on the Government lot adjacent, and tenders for the construction will be invited at an early date.

Plans, &c., prepared by Mr. D. B. Dick, Architect.

## BARRIE.

## POST OFFICE, &amp;c.

A site on Dunlop street is to be donated by the Corporation, and instructions were received to prepare plans, &c., for the construction of the building.

## HAMILTON.

## POST OFFICE, &amp;c.

Since my last report a contract was signed 15th August, 1882, for the erection of this building on the corner of King and John streets. There is to be a main building on King and John streets, and a detached building on Main street in the rear, the former L shaped, covering an area of 10,500 square feet, and the latter rectangular covering an area of 3,750 square feet.

The main building is to have heating apparatus and storage in the basement, the Post Office, Gas Inspection and Weights and Measures on the ground floor, the Customs long room, six offices for Customs and five Inland Revenue offices on the first floor, and unallotted offices for the Customs and Inland Revenue on the second floor; the attic is not appropriated.

The rear building fronts on Main street and consists of a front portion 30 feet by 43 feet, three floors and basement, containing offices for the Customs on ground and first floors, and caretaker's residence on the second floor; the rear portion is to be 83 feet by 30 feet, one story in height and contains the Examining Warehouse.

The street elevations are of Credit Valley stone backed with brick, and the remaining walls, excepting a portion of the partitions, are brick.

Floors and roof to be of wood, the roof covered with tiles or galvanized iron.

The Post Office entrance is to be in the centre of the King street front, and those for the Customs and Inland Revenue on John street.

The two street fronts and a return of 24 feet in the lane are divided into bays by pilasters, those on the lower story constructed of courses of cut and rock faced stone with moulded bases and carved caps, which support an ornamental cornice. The first and second stories are divided into corresponding bays by a series of panelled pilasters, with carved caps and panels, and moulded bases, extending from the top of ground floor cornice to the springing of the second floor window arches and carrying coupled dwarf fluted pilasters which support the main cornice.

Between the first and second floors is a carved and moulded string course.

The window heads on ground floor are segmental, on first floor square, and on the second semicircular.

The main cornice will be 70 feet above level of sidewalk.

In the centre of King street front will be a cut stone pediment with a semicircular carved panel, and the centre on John street will be similar, but flanked with two windows.

At the intersection of the streets is a clock tower, and at the other angles of the street fronts two turrets, all three square on plan. The clock tower is to be 177 feet and the others 128 feet from the side walk to the top of the finials.

The yard elevations are to be plain.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. George Sharpe.

Contractors, Messrs. Van Allen, Brown and Love.

#### IMMIGRATION BUILDINGS.

This building is situated between Stewart, Tiffany, Caroline, and Bank streets, opposite the Great Western Railway Station. It is of wood two stories 30 by 22 feet with a one story wing 70 by 24 feet in the rear. On the ground floor are the offices, immigrants quarters, washrooms, &c., and on the first floor are the caretaker's quarters. In the rear are woodshed, latrines, &c.

Plans &c. prepared by this Department.

Superintending Architect, Mr. C. W. Mulligan.

Contractor, Mr. John Knapman.

#### ST. CATHARINES.

##### POST OFFICE, CUSTOMS AND INLAND REVENUE OFFICES.

The contract for the construction of this building, which was described in my last report, is completed. A hot water apparatus has been supplied, and it is expected that the necessary fittings and furniture will be ready for the occupation of the building this autumn.

Architect, Mr. R. C. Windeyer.

Clerk of Works, Mr. Louis Dorr.

Contractor for building, Mr. Nelson Carter.

Contractors for heating apparatus, Messrs. D. S. Keith & Co.

#### CLIFTON.

##### POST OFFICE, &C.

A contract was entered into May 9th, 1883, for the erection of this building on the corner of Clifton Avenue and Park street.

The main building is to contain a basement, two stories and attics, accommodating on the ground floor the Post Office, and on first floor the Customs and Inland Revenue. Adjoining and on Clifton Avenue is to be a one story Examining Warehouse.

The main building has a frontage of 44 feet on Clifton Avenue by 62 feet on Park street, and the Examining Warehouse has a frontage of 22 feet on Clifton Avenue by a depth of 74 feet.

It will be of stone, with wooden floors and roof, the latter covered with slates.

The plinth, labels, string courses, window jambs, quoins, cornice, &c., to be of cut stone, and the remainder of the walling of quarry faced stone in random coursed work.

Brick safes are to be provided on both principal floors.

The main Post Office entrance will be at the intersection of the streets; and the entrance to the Customs and Inland Revenue Offices on Clifton Avenue.

Plans &c. prepared by this Department.

Clerk of Works, Mr. J. B. Jones.

Contractor, Mr. J. E. Askwith.

### STRATFORD.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

This building, which was described in my last report, has been furnished with a hot water heating apparatus. The work of construction and the placing of the fittings and furniture will, it is expected, be completed this autumn.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. J. R. Kilburn.

Clerk of Works, Mr. Wm. Roberts.

Contractor, Mr. J. E. Askwith.

### CHATHAM.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

A contract was entered into 20th September, 1882, and the construction of the building immediately commenced, on Lot 94, corner of King and Fourth streets. There will be a main building 48 by 50 feet, and an L shaped building in rear, 50 by 61 feet + 25 by 20 + 13 by 12 feet. The main building will have a basement to contain heating apparatus, &c., a ground floor for Post Office, a first floor for Customs and Inland Revenue Offices, and an attic. The rear building will be one story, and occupied as an Examining Warehouse, Weights and Measures and Gas Inspection Offices. Both buildings are to be of brick on stone foundations, and with stone cornices, strings, quoins, jambs, &c., on street fronts.

Floors and roof of wood, the latter covered with slates.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. W. F. Rutley.

Clerk of Works, Mr. John Baxter.

Contractor, Mr. John E. Askwith.

### LONDON.

POST OFFICE.

The increased business of the office necessitated the re-arrangement of the existing and the addition of new fittings; also the construction of a steam heating apparatus, which is in course of being carried out.

Architect, Mr. Thos. H. Tracey.

### ST. THOMAS.

POST OFFICE, CUSTOM HOUSE, &c.

A contract was entered into on 22nd July, 1882, for the construction of this building on the site of the St. Thomas C. W. Presbytern Church, Talbot street.

It will be of stone with wooden floors and roof, the latter covered with slates.

The front portion will be 64 by 62 feet two stories, basement, and unfinished attic, to contain heating apparatus in basement, Post Office on ground floor, and Customs and Inland Revenue on first floor.

In the rear is to be a one story wing 53 by 36 feet for Examining Warehouse, Gas Inspection and Weights and Measures.

The main Post Office entrance is on Talbot Street, and those for the Customs and Mail entrances are at the sides.

The front is to have a central projection surmounted by an ornamental stone dormer constructed to allow of a clock being placed when desired.

The walls externally will be ashlar with cut string courses, labels, main cornice, dormers, &c.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. Edwin Ware.

Clerk of Works, Mr. Thomas Arkell.

Contractor, Mr. Henry Lindop.

### AMHERTSBURG.

#### POST OFFICE, CUSTOM HOUSE, &c.

A site was acquired having a frontage of 90 feet on Dalhousie and 120 feet on Richmond streets, and plans are now being prepared by this Department for a building to accommodate the local Postal, Customs and Inland Revenue Offices.

### SARNIA.

#### IMMIGRATION BUILDING.

A contract has been entered into for the erection of this building on a piece of level sandy land, about a quarter of a mile from Point Edward Railway station, from which a siding has been laid.

It is to be of wood throughout and to consist of a main building 100 by 28 feet, with a kitchen and washroom in rear, 26 by 18 feet. The main building is divided transversely into halves, one being a day room, and the other divided longitudinally into two dormitories, one for each sex.

Plans, &c., prepared by this Department.

Contractor, Mr. C. H. Logan.

#### CATTLE QUARANTINE STATION AT POINT EDWARD.

This is situated three miles north of Sarnia, at the entrance of the Ste. Claire River, on a tract of land eighty-two acres in extent, which was leased 1st April, 1882 from the Grand Trunk Railway, for a term of ten years, at \$100 per annum.

Certain wooden buildings, the property of Mr. Finlay McGibbon, were purchased by the Government and may be removed at the expiration of the lease, as may also be any buildings erected by the Government.

The following works have been executed since the acquisition of the property:

1. Superintendent's house.
2. Cattle stable.
3. Fencing.
4. Repairs to and alterations of wooden buildings and fences.

Plans, &c., prepared, and work supervised by this Department.

Architect, Mr. D. B. Dick.

### PORT ARTHUR.

#### IMMIGRATION BUILDING.

A contract has been entered into for the construction of this building, which will consist of a main two-story portion 100 by 28 feet, having in the rear two wash-

rooms, each 10 by 9 feet, a dining room 48 by 18 feet, and a kitchen 18 by 14 feet—all one story.

The main building has the ground and first floors divided transversely by a central partition, the lower floors being day rooms, and the upper dormitories, one end for each sex.

Plans, &c., prepared by this Department.

Contractor, Mr. C. H. Logan.

## PROVINCE OF MANITOBA.

### WINNIPEG.

#### PARLIAMENT BUILDING.

The late contractors, Messrs. J. P. Lyons & Co., having failed to fulfil the conditions of their contract it became necessary to relet the work. A contract was entered into on the 26th May, 1883, the works were resumed at once and progress to date has been very satisfactory.

Plans, &c., prepared by this Department.

Resident Clerk of Works, Mr. D. Smith.

Contractors, Messrs. Gelley, Moberley & Soucisse.

#### LIEUTENANT-GOVERNOR'S RESIDENCE.

The contract works referred to in my report last year are almost completed, and contracts for stabling, outbuildings, heating, fencing, &c., have been entered into.

It is expected that the works will be completed and the building finished and occupied by the coming September.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Daniel Smith.

Contractors for buildings, Messrs. Bowles & Williams.

Do heating apparatus, Messrs. Charles Garth & Co.

#### TEMPORARY POST-OFFICE.

The Post Office accommodation being inadequate it became necessary to make arrangements to meet the increased postal business. As the lot on which the present office stands is the most suitable for the purpose it became necessary to erect a temporary building in which to carry on the business during the period occupied by the demolition of the existing and the erection of the new building.

As no site for the temporary building could be obtained on what was considered reasonable terms, it was decided to erect it on a lot—the property of the Government—situated between the Custom House and the Lands Office, Main street. It will be 97 by 54 feet, of wood, the front portion to be two stories and the rear one story.

The ground floor will be occupied as the Post-Office, and the first floor as the Receiver General's office.

Resident Clerk of Works, Mr. D. Smith.

Contractor, Mr. C. H. Logan.

#### POST-OFFICE.

Instructions have been received to prepare plans, &c., for the erection of a new Post-Office to occupy the site of the present one.

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POWDER MAGAZINE.

Plans are in course of preparation for a powder magazine of brick on a stone foundation.

## STONY MOUNTAIN.

## PENITENTIARY.

The various outbuildings mentioned in my last report have been completed, as also the alterations of and additions to the heating apparatus.

The Warden's quarters have been cleaned, painted, tinted and papered, and various minor improvements effected there, and in the prison portion of the building.

Instructions have been received to prepare plans, &c., for an additional cell wing, a central hall and a detached boiler house.

Resident Clerk of Works, Mr. D. Smith.

Contractors for heating apparatus, Messrs. Charles Garth & Co.

## BRANDON.

## IMMIGRANT STATION.

This building which was described in my last year's report is completed.

Plans and specifications prepared by this Department.

Superintending Architect, Mr. J. P. M. Lecourt.

Clerk of Works, A. F. Berthiaume.

Contractors, Messrs. Grant and Gelly.

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NORTH-WEST TERRITORIES.

## REGINA.

## NEW PUBLIC BUILDINGS.

Temporary wooden buildings, sufficient for the present requirements of the Lieutenant-Governor and the North-West Council are being erected at Regina.

Resident Clerk of Works, Mr. Wm. Henderson.

## QU'APPELLE.

## IMMIGRANT SHED.

This building was contracted for on 23rd October, 1882.

It was a two story wooden building 100 by 29 feet with a transverse partition dividing each flat for the separation of the sexes. There was a 14 by 18 feet kitchen in the rear, and the necessary out-buildings adjoining.

Resident Clerk of Works, Mr. Wm. Henderson.

Contractor, Mr. John McCallum.

The above building was accidentally burned, and arrangements are being made for the construction of one to replace it.

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BRITISH COLUMBIA.

## NEW WESTMINSTER.

The contract works mentioned in my last report are completed and arrangements are being made for the fittings and furniture.

## NANAIMO.

## POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

A contract was entered into on 18th September, 1882, for the erection of this building on Lots No. 7 and 8, Block 16, and the works are now well advanced.

The building measures 48 by 42 feet, with a stair-case wing 12 by 24 feet.

The walls are of stone, with partitions, floors and roofs of wood.

The Examining Warehouse, Customs Office and Fuel Cellar are to be in the basement, the Post Office and Telegraph Offices on the ground floor, and the Inland Revenue Office on the first floor.

Plans, &c., prepared by this Department.

Contractors, Messrs. Smith and Clark.

## GENERAL.

Various essential repairs, renewals and alterations of a minor character not specially referred to herein, were executed in connection with the various buildings throughout the Dominion.



APPENDIX No 3

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REPORT

ON THE

HEATING APPARATUS, GAS, WATER AND BELL SERVICES, Etc.,

IN THE

PUBLIC BUILDINGS, OTTAWA,

DURING FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

JOHN R. ARNOLDI, MECHANICAL ENGINEER.

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**APPENDIX No. 3.**

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**REPORT OF THE MECHANICAL ENGINEER.**

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(Ref. No. 38,955)

MECHANICAL ENGINEER'S OFFICE,  
OTTAWA, 1st October, 1883.

SIR,—I have the honour to report as follows in reference to the Public Buildings, Ottawa, during the fiscal year ending the 30th June, 1883, viz. :—

**PARLIAMENT BUILDING.**

No new works of any extent were undertaken in this building during the year 1882 83. The modernizing of the heating system was continued as repairs became necessary, and although the cost has been very small, the benefit by improved temperature in the building has been very marked.

The engines, boilers, heating apparatus, and general services of gas, water and bells are in good condition and only require ordinary maintenance during the next year.

**EAST AND WEST BLOCKS, DEPARTMENTAL BUILDINGS.**

In the Western Block, the vault heating pipes have been altered to a more modern system, as was done in the Parliament Building, and the same benefit of better regulation of heat and economy of fuel has resulted here also.

No other work was done in either block, beyond the ordinary maintenance of the heating apparatus, and gas, water and bell services.

**SUPREME COURT BUILDING.**

Nothing but ordinary maintenance was required in this building.

**RIDEAU HALL.**

The warming apparatus, and gas, water and bell services in this building required nothing beyond ordinary maintenance.

The means of ventilation from the upper apartments and bath rooms of this building were considerably extended during the year, and with favourable results.

**OTTAWA POST OFFICE AND CUSTOMS BUILDING.**

Nothing was required to the heating, gas or water services of this building during the year, beyond ordinary maintenance.

**GEOLOGICAL MUSEUM.**

Beyond ordinary maintenance of apparatus, no work was required or done in this building during the year.

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PARLIAMENT GROUNDS, FLOWER PROPAGATING HOUSE.

A further extension of the flower propagating house was made this year and the extra heating apparatus put in; beyond this work, nothing was required in connection with the heating apparatus.

I have the honour to be, Sir,

Your obedient servant,

JNO. R. ARNOLDI,

*Mechanical Engineer.*

F. H. ENNIS, Esq.,

Secretary, Department of Public Works.

APPENDIX No. 4.

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REPORT

ON

HARBOURS AND RIVERS, DREDGES, DREDGING AND SURVEYS

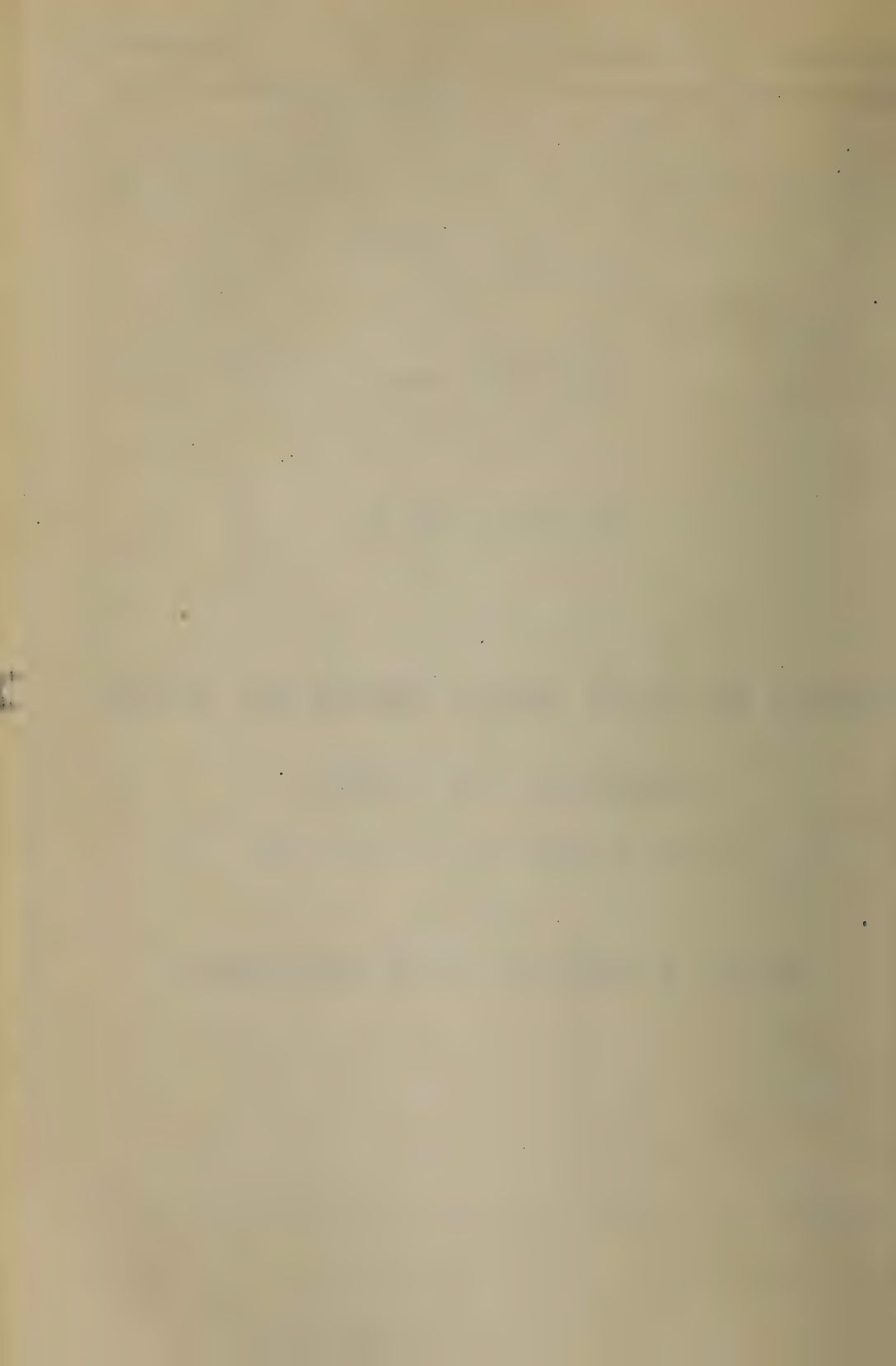
THROUGHOUT THE DOMINION,

FOR FISCAL YEAR ENDED 30<sup>TH</sup> JUNE, 1883.

BY

HENRY F. PERLEY, CHIEF ENGINEER.

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## APPENDIX No. 4.

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### REPORT OF THE CHIEF ENGINEER.

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(Ref. No. 39,757.)

CHIEF ENGINEERS' OFFICE,  
OTTAWA, 24th October, 1883.

SIR,—I have the honour to report as follows on the Harbour Works and Surveys of the last fiscal year.

I have the honour to be, Sir,  
Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Public Works Department.

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#### PRINCE EDWARD ISLAND.

##### CHARLOTTETOWN.

At Rocky Point, Charlottetown Harbour, the dredge *Prince Edward* worked from the 11th May to the close of the year, in opening a channel or passage from the main channel to the ferry wharf or landing, and removed 29,520 cubic yards.

##### WOOD ISLANDS.

The harbour at these islands, known as Victoria Harbour, is situated on the south coast of the Island, about thirty miles south-east from Charlottetown.

The amount appropriated was expended in repairing and raising the breakwater on the eastern side of the harbour, built some years ago by the Provincial Government.

##### SOUTH RIVER, MURRAY HARBOUR.

South River empties into the southern part of Murray Harbour (so called), a large bay in the south eastern part of Kings County, opening into the Gulf of St. Lawrence.

From the 1st July to 26th October, 1882, the dredge *Prince Edward* was engaged in the work referred to in the report of last year of straightening the channel and deepening it to 8 feet at extreme low water.

##### ST. PETER'S BAY.

Is situated on the northern coast, thirty-five miles west of East Point.

In February, 1883, a contract was entered into for the construction of works for the purpose of contracting the channel at the entrance to the harbour so as to increase the force of the current in its passage over the outer bar. At the close of the year five-eighths of the work had been completed.

## RUSTICO.

Grand Rustico is on the north coast, about midway between the northern and eastern points of the Island.

The works referred to in the report of last year as being under contract, have been carried on slowly during the year, and at its close were about seven-eighths completed.

## NEW LONDON.

New London is situated on the northern side of the Island, about ten miles eastward from the entrance to Richmond Bay.

In February last a contract was entered into for the construction of a breakwater 460 feet in length on the western side of the entrance to the harbour and a dam 1,600 feet in length at Campbell's Point to confine and increase the force of the current of the South-west River, and thus tend to deepen the shoal obstructing the mouth of the harbour. At the close of the fiscal year, about two-thirds of the projected works had been completed.

## MALPEQUE.

The harbour of Malpeque lies within the eastern entrance to Richmond Bay on the north shore of the Island.

The planking on the outer end of the breakwater, which had been removed by floating ice, has been replaced.

## TIGNISH.

Is on the north coast, about 8 miles from North Point.

The works mentioned in last year's report as being in progress have been completed.

## NOVA SCOTIA.

## MAIN-A-DIEU.

A small harbour in Cape Breton County, lying inside of Scatterie Island.

The breakwater referred to in the report of last year as being in course of construction, was completed in August 1882.

## COW BAY.

During the past year the amount appropriated for repairing the breakwater at Cow Bay, Cape Breton County, was expended in placing horizontal and vertical fenders on the inner face over a length of 800 feet from the outer end, in repairing the covering, and in making a new roadway with double 3 inch covering from the shore end over a distance of 420 feet.

This breakwater was damaged to a great extent during a gale early in 1883, and an appropriation was made at the last Session of Parliament towards effecting necessary repairs.

## PORT CALEDONIA.

Situated in Cape Breton County, and 10 miles south from Sydney Harbour.

The dredge "St. Lawrence" was engaged from the commencement of the fiscal year to the 2nd August, 1882, and between the 10th May and 18th June, 1883, in deepening the harbour for the accommodation of the large class of vessels engaged in the coal trade.

## LITTLE GLACE BAY.

In Cape Breton County, and 14 miles southward from Sydney Harbour.

Between the 2nd August and 21st September, 1832, and the 18th and 30th June, 1883, the dredge "St. Lawrence" was employed in dredging the entrance to the harbour.

## NORTH SYDNEY.

The harbour of North Sydney, Cape Breton County, is the principal one on the east coast of the Island of Cape Breton. It is well protected on all sides, especially on the eastern by a "bar" or shoal extending from the shore.

It having been found that the sand forming this shoal was swept into the harbour during easterly gales, works for preventing this were commenced in 1881 at the joint expense of the Harbour Commissioners and the Dominion, and during 1882-83 a further amount was expended by the Department in extending the works a distance of 150 feet, the total length now amounting to 254 feet.

## EAST BAY.

During the spring of 1881 a wharf was built at the head of East Bay, an arm of the Bras d'Or, Cape Breton, by the residents of the locality assisted by the Local Government, for the accommodation of the steamer carrying the mails between the terminus of the Eastern Extension Railway at the Gut of Canso, and Sydney, C.B.; and during the fiscal year it was extended a distance of 70 feet into deeper water, at the expense of the Dominion.

## RIVER BOURGEOIS.

The Bourgeois is properly an arm of Lennox passage, about five miles to the westward of the southern entrance to the St. Peters Canal.

Between the 18th October and the 25th November, 1882, the dredge "Geo. McKenzie" operated on several shoal points in this river and removed 18,920 cubic yards of mud, clay, &c.

## GRAND GOULET.

Grand Goulet is an outlet from the northern side of Lennox Passage, between Ile Madame and the mainland, Richmond County, consisting of an outer and inner basin, the entrances to which were closed by bars. Passages through these two bars were opened by the dredge "Geo. McKenzie," and 23,584 cubic yards of sand, mud gravel, &c., removed at a cost of  $23\frac{6}{10}$  cents per yard.

## BENACADIE POND

Benacadie Pond, Cape Breton County, is an inlet from the Great Bras d'Or Lake, near the Grand Narrows, which has its entrance obstructed by a bar of shifting sand, and gravel.

The work of protecting the eastern side of the proposed channel into this pond alluded to in the report of last year, has been carried on during the year.

## MABOU.

The harbour of Mabou, Inverness County, is situated on the western side of the Island of Cape Breton, about six miles northward from Port Hood.

During the year the cribwork protection wall on the southern side of the channel opened in 1873-74, was raised and repaired, and strengthened by close piling and the deposition of "rip rap."

The work of opening a channel 14 feet in depth through the shoal lying off the entrance to the harbour was continued by the dredge "Cape Breton" from the 12th to the 30th June last.

#### PORT HOOD.

Port Hood is the shiretown of the County of Inverness, Cape Breton, and twenty miles north-east from the northern entrance of the Gut of Canso.

The damages mentioned in the report of last year, together with those done during subsequent gales, were repaired during the fiscal year.

#### ARISAIG.

Arisaig, in the County of Antigonish, is on the Straits of Northumberland, and fourteen miles westward from Cape George.

During the winter of 1880-81 the seaward face of the breakwater at this place, built some years ago by the Government of Nova Scotia, was damaged by ice, and in November, 1881, a length of 70 feet of the outer end was carried away during a gale down to three feet below low water mark. These damages have been made good.

#### PICTOU ISLAND.

This island lies distant eight miles and north easterly from the entrance to the harbour of Pictou.

The landing pier, built by the Provincial Government, near the western end of the island, was repaired during 1880-81, and with the amount available a small landing pier 100 feet in length, was constructed about two miles and a half from the eastern end.

#### PICTOU.

In the harbour of Pictou several of the dredges of the Department were employed during the fiscal year.

In the channel to the public market wharf, the "Cape Breton" was engaged between the 28th October and the 24th November, 1882; the "Prince Edward" from the 3rd to the 24th November, 1882; and the "Canada" between the 19th and 22nd May, 1883. The "Canada" dredged at the loading pier of the Acadia Coal Company from the 22nd to the 29th May, 1883. The "Cape Breton" worked from the 10th to the 29th May, 1883, in a channel from the channel of Middle River to Shaw's brick-yard.

#### RIVER JOHN.

The River John, Pictou County, empties into John Bay at the south-eastern corner of Amet Sound, Straits of Northumberland, about twelve miles north of the entrance to the harbour of Pictou.

The dredge "Cape Breton" operated on the bar at the mouth of the river between the 20th May and 5th June, 1883, removing 2,759 cubic yards of mud.

#### TATAMAGOUCHE.

The Tatamagouche River, Colchester County, empties into the South-West corner of Tatamagouche Bay, Straits of Northumberland.

In the report of last year it was stated that dredging was being carried on at the close of the year in opening a channel through the bar obstructing the mouth of the river. The dredge "Cape Breton" continued the work until the 23rd October, 1882.

## GREAT VILLAGE RIVER.

Great Village River, Colchester County, empties into the northern side of Cobequid Bay, the extreme end of the eastern arm of the Bay of Fundy.

Owing to the circuitous course of the river near its mouth, it has been deemed desirable, in order to facilitate its navigation, to straighten its course by opening a new channel 1,850 feet in length, and at the close of the fiscal year about one quarter of the length under contract had been completed.

## PARRSBORO'.

A small amount was expended in replanking portions of the roadway and slip of the public landing pier at Parrsboro', Cumberland County, and in renewing and securing the fenders at the outer end which had been damaged by floating ice.

The work of improving the Channel of Partridge Island River, principally at Mullins and Shannon's Points, was carried on during the year, and 8,190 cubic yards of materials were removed at a cost of 30 cents per yard.

## CHEVERIE.

Cheverie, Hants County, is situated on the southern side of the Basin of Minas, 15 miles to the northward of the town of Windsor.

The wharf at this place was commenced by the inhabitants for the shipment of plaster, which is one of the principal industries of the neighbourhood, and in 1873-74 it was extended to a length of 270 feet.

During the past year a length of 150 feet was constructed, and provision made by Parliament for continuing the construction of further works.

## PICKETT'S PIER.

Pickett's Pier, King's County, is a very small landing pier situated on the south side of the mouth of the Habitant River, where it enters the Basin of Minas, and two miles below the village of Canning.

It was built some years ago at the joint expense of the Provincial Government and the residents of the locality, for the shipment of farm produce. During 1877-78 a small expenditure was made by the Department in repairs, and in the past year further repairs were effected, and the whole of the pier and the approach thereto raised above the level of high water, spring tides.

## PORT LORNE.

Port Lorne, formerly Port Williams, Annapolis County, is situated on the southern shore of the Bay of Fundy, about 32 miles to the eastward from Digby Gut.

A breakwater was built at this place many years ago by the inhabitants, assisted by the Local Government, and during 1872-73 an additional length of 67 feet was constructed by the Dominion, and in 1879-80 some necessary repairs were effected.

In February last a contract was entered into for the construction of a further length of 100 feet, to give additional shelter to vessels, and at the close of the year one-third of the work had been completed.

## ANNAPOLIS.

Annapolis, the shire-town of Annapolis County, is situated at the mouth of the river bearing the same name, and is the terminus of the railway from Halifax, and of the line of steamers from St. John, N.B., Boston, &c.

For facilitating and increasing the trade of the neighbourhood and the traffic of the port, the Acadia Steamship Company during 1881-82 constructed a large wharf or pier to accommodate ocean steamers, and the amount specially appropriated for the purpose has been duly paid to this Company.

## BEAR RIVER.

This river empties into the Annapolis Basin about ten miles to the eastward of the town of Digby, and is navigable for small vessels from its mouth to the village of Bear River, a distance of five miles.

The existence of boulders and other obstructions in the channel has always been a drawback to its navigation, and the small amount authorized has been expended, with beneficial effects in the partial removal of these obstructions.

## DIGBY.

Digby, the shire town of Digby County, is situated at the western end of Annapolis Basin.

During the year extensive repairs to the public pier at this place, which had received much injury from the effects of the sea-worm (*limnorea terebrans*), were effected.

The dredge "New Dominion" was engaged from the 12th May, up to 30th June last, in deepening the southern side of the public wharf, to permit the approach of steamers at low tide.

## TROUT COVE.

Trout Cove is situated on the southern coast of the Bay of Fundy, nearly midway between Digby Gut and Petit Passage.

In 1858, the inhabitants of the locality, assisted by the Provincial Government, constructed a small wharf, which, in 1876 and 1880, was extended and repaired by the Department. During 1881-82 a breach of 100 feet in length through the old portion of this structure was closed, and further repairs were executed during 1882-83.

## METEGHAN RIVER.

At the mouth of the Meteghan River, which empties into the southern side of St. Mary's Bay, about forty miles to the westward of the town of Digby, a harbour suitable for small vessels was constructed many years ago by the Government of Nova Scotia.

Since Confederation the Department has at different times made extensive repairs to the piers enclosing the harbour, and during the past year close-piled the southern one, added 80 feet to its length, placed the northern pier in a good state of repair, and removed from the channel, a number of stones and boulders which were utilized as ballast.

## METEGHAN COVE.

Meteghan Cove, Digby County, is situated on the south shore of St. Mary's Bay, three miles south-west from Meteghan River.

During the year the breakwater at this place was re-ballasted, close-fendered, and the L, or return portion at the outer end, which had been damaged by ice during storms of the previous winter, was re-covered.

## CAPE ST. MARY.

Cape St. Mary, Digby County, is situated on the southern side of St. Mary's Bay.

It was stated in the report of last year that the pier at this place, built many years ago at the joint expense of the Local Government and the inhabitants, had become much dilapidated, and that repairs were in progress. During the past year these repairs were completed.

## YARMOUTH.

The harbour of Yarmouth is situated at the south-western extremity of the Province. During 1872-73, a sea wall extending from Stony Beach Point to Cape Forechu was built for the purpose of protecting the lower portions of the harbour, and preventing the wasting of the beach during the high tides and heavy gales.

During the fiscal year portions of this wall which had decayed were re-built, and the seaward face of the whole work close-fendered.

## JORDAN BAY.

The breakwater built in 1875-76, on the eastern side of Jordan Bay, and near the mouth of Jordan River, owing to settlement and damages received during storms required extensive repairs, which were executed during the year.

## SUMMERVILLE.

Summerville is in Queen's County on the north side of Mouton Bay, about twelve miles to the westward of the town of Liverpool.

The small breakwater at this place built in 1878-79, has been strengthened and repaired.

## EAGLE HEAD.

Eagle Head is situated on the Atlantic coast of Queen's County, about eight miles to the eastward of Liverpool.

Several years ago a stone breakwater, 275 feet in length, was built at this place by the Local Government, and the amount appropriated has been expended in the construction of a further length of 125 feet, and repairing the old work.

## WHITE POINT.

White Point, Queen's County, is a small fishing village, situated on the Atlantic, about six miles south-east from Liverpool.

Many years ago the inhabitants, with assistance from the Provincial Government, began the construction of a small breakwater to protect their boat-landing, and in 1877-78, it was extended by the Department, and the area thus sheltered was improved by the removal of boulders.

During the last fiscal year the outer portion of the old work, which had been completely demolished during a storm, was rebuilt, and repairs executed on other parts of the structure.

## COFFIN'S ISLAND.

Coffin's Island lies in the Atlantic Ocean, off the entrance to Liverpool Bay, Queen's County, and carries one of the principal lights on the south-western coast of Nova Scotia.

A small harbour is situated in the centre of the island, and the amount appropriated was expended in protecting a low portion of the western beach, by the construction of a "spur," composed of large-sized stones carefully hand laid, extending from the shore to the "Dundee Rock," a distance of 250 feet.

## BROOKLYN.

Brooklyn is situated at the head of Liverpool Bay, Queen's County.

During the year the breakwater at this place has received some needed repairs.

## SILVER POINT.

Silver Point is situated on the western side of Mahone Bay, about four miles to the northward of the village of Mahone Bay, Lunenburg County.

The small amount authorized was expended in repairing the "Warping Pier," on the northern side of "Hiltz Narrows," and in the removal of rocks from the channel of the "Run," to enable boats to enter and leave the basin inside at all times of the tide, and schooners during high water.

## SAW PIT.

This locality is situated about three-quarters of a mile to the eastward of the town of Lunenburg. Prior to Confederation a small wharf was built by the Provincial Government for the convenience and use of the inhabitants of the numerous islands and inlets to the northward and eastward.

Since its construction this wharf has received little attention and scanty repairs, and with the small amount authorized has been placed in a serviceable condition.

## HALIFAX.

The work done in the harbour of Halifax has been dredging on account of the Department of Railways and Canals, in connection with the deep-water terminus of the Intercolonial Railway.

The dredge *St. Lawrence* operated at intervals between the 3rd October and 14th December, 1882, and the 23rd April and 2nd May, 1883; and the *Geo. McKenzie*, altered to dig to 31 feet depth, worked at intervals from the 26th January to the 30th June, 1883.

## SHERBROOKE.

Sherbrooke, the shire town of Guysboro' County, N.S., is situated on the River St. Mary. Here the dredge "Canada" was engaged, at the close of the last fiscal year, in the removal of the obstruction in the river between Sherbrooke and Goldenville. This work was continued until the 8th July, 1883. Much delay was experienced in prosecuting this work, from the fact that the dredging could only be done between half-flood and half-ebb tide, and the dredged material had to be conveyed ten miles to a place of deposit.

## SAINT MARY'S RIVER.

This river, which is sixty miles in length, empties into the sea at Sherbrooke, in the County of Guysboro', about fifty miles south-westwardly from Cape Canso.

A large amount of lumber is annually run down this river, but owing to the existence of rocks and boulders in the channel a great loss both in time and lumber is experienced.

The amount appropriated was expended in the improvement of the main river between Sherbrooke and Wallace Bridge, and portions of the east and west branches, and the results obtained have been satisfactory.

## NEW BRUNSWICK.

## CARAQUET.

Caraquet, Gloucester County, is situated on the southern shore of the Baie des Chaleurs, about forty-two miles to the eastward of Bathurst. There the Local Gov-

ernment had constructed a wharf 1,150 feet in length; and, to form a small harbour, an arm 100 feet in length is under course of construction, which at the close of the fiscal year was well under way.

## SHIPPAGAN.

Shippagan, Gloucester County is situated at the north-eastern extremity of New Brunswick, about sixty miles to the eastward from Bathurst.

During the past year the breakwater was extended seaward a distance of 120 feet, and shoreward 100 feet to close a gap, and raised over the older portion with brush and stone. The dam across the East Gully having settled over its whole length was raised in those parts which were deemed to be unsafe.

## RICHIBUCTO.

Richibucto is on the Straits of Northumberland, forty miles north of Shediac.

A breakwater 1,200 feet in length was constructed on the northern side of the entrance to the harbour, during 1872-75. Owing to a change in the set of the currents, an erosion of the sand beach at the head of the breakwater took place and continued to such an extent that, to prevent a breach being made through the beach and thus destroying the usefulness of the breakwater, it was found necessary to construct protection works, which during the past year had to be raised and strengthened over a portion of their length.

## BUCTOUCHE.

Buctouche, Kent County, is situated on the Straits of Northumberland, about twenty-one miles northward from the harbour of Shediac.

The dredge "Canada" was engaged in dredging at Chapel and Priest's Points in the harbour, from the 11th September to the 15th November, 1882.

## COCAGNE.

Cocagne, Kent County, on the east coast of the Province, has its entrance on the Straits of Northumberland, about ten miles northwardly from Shediac.

The landing pier on the north side of the harbour near the highway bridge, referred to in the report of last year, has been completed.

The dredge "Canada" operated in improving the entrance to the harbour, between the 15th July and 9th September, 1882.

## POINTE DU CHÊNE.

Pointe du Chêne, Shediac harbour, Westmoreland County, is the eastern terminus of the New Brunswick division of the Intercolonial Railway, and is a principal point of communication with ports on the Gulf of St. Lawrence and Prince Edward Island, and for the shipment of lumber, &c. to foreign ports.

The work of extending the breakwater for the protection of the railway wharf, referred to in the Report of last year, was finished in September, 1882.

The dredge "Canada" was engaged in the removal of obstructions and lumps from the channel of the harbour, and near the Intercolonial Railway wharf, from the 25th May up to the close of the fiscal year.

## QUACO.

Quaco Harbour is situated on the northern side of the Bay of Fundy, about thirty miles east of the City of Saint John.

The breakwater on the western side of the harbour reported last year as having been commenced, has been brought to a successful completion.

The sheathing on the seaward face of the eastern breakwater built in 1872, has been repaired.

#### TYNEMOUTH CREEK.

Tynemouth Creek enters the northern side of the Bay of Fundy, about twenty-five miles to the eastward of the harbour of St. John. At its mouth the creek is contracted by a sea-wall of coarse gravel on its western side, inside of which quite a large basin exists.

During 1874-75 a small breakwater was constructed on the eastern side of the entrance, and the appropriation of last year was expended in the construction of a similar structure on the western side, to prevent the wearing away of the end of the sea-wall.

#### ST. JOHN.

The re-construction of the portion of the breakwater at the western entrance to the harbour, which was destroyed during a gale in January, 1879, was carried on during the year, and up to its close about two-fifths of the works proposed has been completed.

#### COURTENAY BAY.

Courtenay Bay lies to the eastward of the City of Saint John, and dries out at low-water, leaving a large expanse of sand flats through which the waters of the Marsh Creek flow in a very crooked channel. At the head of the bay, ship yards have existed for very many years, and much difficulty has been experienced, owing to the tortuous character of the channel of the creek—which must be followed—in towing out newly launched vessels. The small amount appropriated has been sufficient to cover the cost of placing clumps of piles at points in the channel to define it during times of high water.

#### WILSON'S BEACH.

Wilson's Beach is situated on the western side of Campo-Bello Island, Charlotte County. During 1873-74 and 1877-78 a small breakwater for the protection of fishing boats was constructed at this place, and during the past year this structure was raised, rebalasted, and fenders which had been carried away were replaced.

#### ST. ANDREW'S HARBOUR.

The "Beacon Block" reported last year as being constructed at the western entrance to the harbour has been completed.

#### RIVER ST. JOHN.

The amount appropriated was expended in the improvement of the tow-path between the mouth of the St. Francis and Grand Falls, and the removal of rocks and boulders at the mouth of the St. Francis, at the Rice and Quisibis Rapids, and in blasting the Stafford Rock. The navigable channel between River des Chutes and Bear Island was improved by the removal of boulders and stone at Dibblee's Rapids, Bull's Island, Meductic Bar, Eel River, Nackawic, Davidson's Bar, and Bear Island. Much work was done towards the improvement of the Meductic Falls, the most formidable obstruction to navigation between Fredericton and Grand Falls.

Further works for strengthening the sheer dam at Oromocto and protecting the head of Thatch Island from scouring have been completed, and from the soundings which are taken yearly since the completion of the dam, it is noticed that there has been an improvement in the depth of water over the Oromocto shoals.

Between the 20th June and 25th October, 1882, sixty-five snags were removed from the navigable channel between Grand Bay and Fredericton.

## THE GRAND LAKE.

The Grand Lake is a large and important branch of the River St. John, and has its outlet through the Jemseg.

At McMann's Cove the dredge "New Dominion," between the 31st August and 26th October, completed a channel from the main channel up to and around the head of the public wharf or landing.

## RIVER TOBIQUE.

This river empties into the eastern side of the St. John about two miles above Andover, the shiretown of the County of Victoria, and twenty-two miles below Grand Falls.

Boulders and small rocks were removed from the channel at Three-Brooks-Bar, Ox Island, Plaister Rock, Wapskehagan, and improvements by blasting were made at the Narrows, on the reef at Grand Bar, on Craig's Reef, at Red Rapids, and at the Upper and Lower Pitches.

## RIVER MADAWASKA.

The Madawaska is a tributary of the St. John and empties into it at Edmundston, 239 miles above the City of St. John.

The amount authorized has been expended in the improvement of the tow-path and channel of the river up to Lake Temiscouata.

## QUEBEC.

## ETANG DU NORD.

Etang du Nord is at the western end of Grindstone Island, one of the Magdalen Islands, Gulf of St. Lawrence.

A further length of 175 feet of the breakwater at this place has been commenced, and at the close of the year the prospects were that it would be completed before the ensuing winter set in.

During a gale in September, 1882, damage was done to the portion of the work constructed during the preceding summer. Repairs have been effected, and a change dictated by experience has been made in the shape of the portion above water, which it is believed will be the means of reducing, if not preventing, damage in the future.

## NEW CARLISLE.

New Carlisle, on the north shore of the Baie des Chaleurs, is the chief town of the County of Bonaventure, and is distant sixty-five miles from Campbellton, N.B.

During the last fiscal year a further length of the pier at this place, or a total of 300 feet, was constructed. As designed, there was to have been a depth of 14 feet at low water at the outer end of the pier, but during storms in November and December, 1882, scouring of the bottom took place, and there is now 22 feet at low water instead of 14 feet. As the work had to be built up as it settled to this new depth, it has become necessary to devise means to more effectively protect it from the effects of storms and ice.

## CARLETON.

Carleton is on the Baie des Chaleurs, County of Bonaventure, thirty-six miles from Campbellton, N.B.

With the exception of some works of minor importance, the pier at Carleton, so far as projected, was brought to completion at the end of the year. To make it thoroughly useful it will require to be extended a further distance of 75 feet.

#### MATANE.

Matane is on the south shore of the River St. Lawrence, 240 miles below Quebec.

Besides repairing the unprotected corners of the crib-work in the pier at this place, a row of close sheet piles was driven on the eastern side for the purpose of arresting and retaining the sand swept down by the current of the St. Lawrence, and the object desired has been attained.

#### RIVIERE BLANCHE.

Rivière Blanche is on the south shore of the St. Lawrence, nine miles above Matane.

During the season of 1882 work was commenced in connecting with the shore the isolated block built in 1876 and enlarged in 1879.

#### TROIS PISTOLES.

Trois Pistoles is 143 miles below Quebec and is in the County of Temiscouata on the south shore of the St. Lawrence.

Further work to the extent of the amount appropriated was done during the year towards making a connection between the shore and the isolated block referred to in the report of last year.

#### TADOUSSAC.

On the east side of the River Saguenay, about 122 miles below Quebec.

During the past year the work of rebuilding four dams in connection with the Fish Breeding Establishment at this place was completed.

#### ANSE DU PORTAGE.

Opposite Tadoussac, at the mouth of the Saguenay.

At the close of the year the landing slip to facilitate the transportation of the mails across the mouth of the Saguenay during the winter to and from Tadoussac, referred to in last year's report as being in course of construction, was fully completed.

#### ANSE ST. JEAN.

On the south-west shore of the Saguenay, twenty-five miles from its mouth.

The further works for the completion of the pier at this place referred to in the report of last year, have been executed. A shed for passengers and freight has been constructed, and a connection made with the public road.

#### ST. ALPHONSE DE BAGOTVILLE.

St. Alphonse is situated at the head of Ha! Ha! Bay, River Saguenay, about sixty-six miles from its mouth.

It having been found necessary to support the outer end of the pier at this place, the amount appropriated was expended in the construction of a block of crib-work sunk close to the pier and filled in solidly with ballast.

It will be necessary to raise this pier fully 3 feet over its whole length, because it is covered during the time of spring tides, when much inconvenience is caused to passengers, and damage done to freight, &c., left or deposited thereon.

## RIVER, SAGUENAY.

The work of improving the navigation over the shoals below the town of Chicoutimi, was actively prosecuted during the year; 890 rocks and boulders, many of large size, have been removed and placed on the bank or else in places in the river where there is a greater depth than 20 feet at low water. The special apparatus devised for dredging, alluded to in the report for last year, was found to work very well, and 3,770 cubic yards of earth and stones were removed by it.

## LA GRANDE DECHARGE.

The larger of the two discharges of the waters of Lake St. John into the Saguenay.

During the year the work of widening the outlet of the lake was continued. The object of this work is to increase the off-take capacity of this channel, and thus permit a quicker subsidence of the water which accumulates in the lake at the time of freshets.

## TEMISCOUATA ROAD.

The Temiscouata road extends from Rivière du Loup (*en bas*) to the boundary line between the Provinces of Quebec and New Brunswick, and is sixty-seven miles in length.

During 1882, twenty-seven culverts and three small bridges have been rebuilt; and the bushes and trees, which had grown up on either side of the road, were removed over a distance of twenty-one miles.

The re-building of the bridge across the St. Francis was being proceeded with, and the bridge over the Rivière Verte, which is very high and had sunk about a foot on the southern side, was raised to its original level.

## RIVIERE DU LOUP (EN BAS.)

Rivière du Loup is the *chef lieu* of the County of Temiscouata, and is situate on the south shore of the St. Lawrence 114 miles below Quebec.

During 1882 the head of the pier was re-sheathed from low water mark upwards and a moveable slip for more ready access of steamers and landing of passengers and freight was completed.

## PORT AU SAUMON.

Port au Saumon, in the County of Charlevoix, is situated on the north shore of the St. Lawrence, twelve miles to the eastward of Murray Bay.

The sum of \$402.08 was expended in the removal of boulders obstructing navigation, and the improvements made are recognized by the masters of vessels frequenting this port.

## CAP A L'AIGLE.

Cap a l'Aigle is on the north shore of the St. Lawrence, about three miles east of the village of Malbaie.

A small freight shed has been built on the wharf at this place.

## POINTE A PIC, MURRAY BAY.

On the north shore of the St. Lawrence, eighty-four miles below Quebec. A moveable slip or landing has been constructed in the wharf at this place, to accommodate the landing of passengers and freight at all times of the tide.

## RIVIERE OUELLE.

In the County of Kamouraska, seventy-five miles below Quebec, on the south shore of the St. Lawrence.

During the year the central portion of the pier at Pointe aux Orignaux (Rivière Ouelle) was raised to the same height as the portion at the shore end, undertaken in 1881.

## LES EBOULEMENTS.

The village of Les Eboulements is on the north side of the St. Lawrence, sixty-nine miles below Quebec.

A shed for freight and passengers has been constructed on the wharf at this place.

## ILE AUX COUDRES.

An island in the St. Lawrence, near the north shore, twelve miles from Bay St. Paul.

For the accommodation of freight and passengers a freight shed was built on the wharf lately constructed by the Department at this place.

## BAY ST PAUL.

Bay St. Paul is in the County of Charlevoix, on the north shore of the St. Lawrence, about sixty miles below Quebec.

During the year a length of 571 feet of the pier at Pointe Rouge, Cap aux Corbeaux, was completed. Preparations have been made to proceed with a further length of 230 feet to complete this pier, as originally designed.

## ST. JEAN PORT JOLI.

In the County of L'Islet, 54 miles below Quebec, and on the south shore of the St. Lawrence.

The amount appropriated has been expended in the construction of an additional length to the pier to obtain a greater depth of water.

## L'ISLET.

L'Islet is on the south shore of the St. Lawrence, forty-seven miles below Quebec. Some small but needed repairs were executed during the year on the pier at this place.

## ILE AUX GRUES.

Ile aux Grues, or Crane Island, is opposite Cap St. Ignace on the St. Lawrence, thirty miles below Quebec.

The work under contract for the construction of a pier projecting from the lighthouse block, to enable freight and passengers to be landed at low tide, referred to in the report of last year, has been brought to completion.

## ST. THOMAS MONTMAGNY.

On the south shore of the St. Lawrence, thirty-five miles below Quebec.

During the year the sum of \$100 was expended in filling up the pier built at this place with ballast, and placing a couple of ladders for the convenience of those who have to land from boats at times of low water.

## GROSSE ILE.

Grosse Ile is an island in the St. Lawrence, thirty-three miles below Quebec.

The amount appropriated was expended in the further extension of the Eastern pier, completion of repairs and formation of a new roadway above high water mark, as the old roadway was always covered at high tide.

## ST. FRANÇOIS D'ORLEANS.

St. François is situated at the extreme eastern end of the Island of Orleans, below Quebec.

During the year the construction of a landing pier was commenced and a length of 265 feet completed.

## ST. MICHEL.

On the south shore of the St. Lawrence, about sixteen miles below Quebec.

A small sum was expended during September and October, 1882, in the removal of boulders lying off the end of the pier at this place.

## QUEBEC MARINE HOSPITAL WHARVES.

These wharves form the eastern and western boundaries of the hospital grounds and having been built for many years have become much decayed.

The amount appropriated was expended in renewing a portion only of the east wharf.

## LES ECUREUILS.

The Village of Les Ecureuils is in the County of Portneuf, twenty-five miles above Quebec.

A small amount was expended on some necessary repairs to the pier at this place

## THREE RIVERS.

Three Rivers is the head of tidal water in the St. Lawrence, seventy-two miles above Quebec and ninety-two miles below Montreal.

The lifting barge, specially constructed for the removal of anchors and chains and obstructions in the harbour of Quebec, was engaged during the season of 1882 in the removal of the large boulders from the shoal in the St. Lawrence opposite Three Rivers, accomplishing only a portion of the work of removing these obstructions to navigation.

## NICOLET.

The River Nicolet empties into the St. Lawrence at the foot of Lake St. Peter on its southern shore.

It having been found to be desirable, the position of the channel from the main channel of the St. Lawrence was shifted to the eastward.

Up to the close of the fiscal year, owing to high water in the St. Lawrence, only dredging had been executed by the contractors.

## YAMACHICHE.

Yamachiche is on the north shore of the St. Lawrence, seventy-seven miles east of Montreal and about sixteen miles above Three Rivers.

The amount appropriated was expended jointly with the local authorities in the construction of a wharf for the accommodation of the trade of the place.

## RIVER ST. FRANCIS.

The River St. Francis rises in the County of Wolfe, Quebec, and after a course of about 100 miles empties into Lake St. Peter.

Work on this river to facilitate the descent of timber, was done at Rapide Blanc, Rapide des Pêches, and Rapide Bord du Bassin, in the removal of boulders and points of rock.

At Hemming's Falls a channel about 500 feet in length has been opened, and a stone dam 40 feet long built between the eastern bank and the first island. A few boulders have also been removed from above the falls.

A further expenditure in this case is desirable.

## RIVER YAMASKA.

The River Yamaska empties into the head of Lake St. Peter, River St. Lawrence.

In August, 1881, a contract was entered into with Messrs. Brecken, Gaherty and Davis, for the construction of a lift lock and dam at Ile à Cardin, one and three-quarter miles below the village of St. Michel de Yamaska, and about four and a-half miles from the mouth of the river.

At the close of 1882, the lock bottom had been finished, and the walls carried up to a height of 6 feet, the breast wall built, the wing piers at both ends of the lock constructed to about 4 feet above the walls, and filled with stone, and the puddling and earth filling back of the walls and wing piers brought up to the level of the walls.

Owing to the height of water in the river, no work was done up to 30th June last.

## LAKE MEGANTIC.

This lake is situated about forty miles south-east from the town of Sherbrooke, is sixteen miles in length, and of an average breadth of two miles, its waters flowing through the Chaudière to the St. Lawrence.

On this lake at Agnes, a post village in Beauce County, a small wharf has been constructed.

A small wharf was also commenced at Piopolis.

## LONGUE POINTE TO BOUCHERVILLE, RIVER ST. LAWRENCE.

The operations of the dredging plant at work at the opening of the fiscal year, on the ferry route between Longue Pointe and Boucherville, six miles below Montreal, continued until the 3rd November, when the channel was completed.

## LAPRAIRIE.

The *chef-lieu* of the County of Laprairie, is situated on the southern shore of the St. Lawrence, seven miles above Montreal.

During the whole of the season of 1882 the dredge "Queen" was engaged in deepening to 7 feet at low water around the front and sides of the public wharf and the channel leading thereto from the main channel of the St. Lawrence.

## BACOT HAYES' SHOAL, RIVER ST. LAWRENCE.

The work of providing a channel 8 feet deep and a minimum width of 150 feet to the northward of the old steamboat route on the north side of the St. Lawrence about two and a-half miles below the village of Cedars, in the County of Soulanges, was completed on 16th September, 1882.

## ST. TIMOTHEE.

St. Timothée is in the County of Beauharnois, on the south shore of the St. Lawrence, at the head of the Chute aux Bouleaux Rapids.

During the fiscal year a landing pier has been constructed at this place, consisting of a block 100 feet by 24 feet, having from  $6\frac{1}{2}$  to  $7\frac{1}{2}$  feet of water along its front, and a roadway to the shore 237 feet in length and 20 feet in width.

## ST. ZOTIQUE.

At the foot of Lake St. Francis, three miles from Coteau Landing.

The amount appropriated for expenditure during 1882-83 was used in the construction of a block 100 feet in length and 24 feet in width in 9 feet of water in Lake St. Francis, at a distance of 1,150 feet from the shore.

Provision has been made for connecting this block with the shore.

## RIVER BEAUDET.

The River Beaudet empties into Lake St. Francis at Pointe au Beaudette.

During the summer of 1882 the dredge "Nipissing" opened a passage through the shoal or bar in the lake, obstructing the entrance to the river, and also deepened the channel to 7 feet of water nearly to the highway bridge.

## ST. PLACIDE.

St. Placide is a small village in the County of Two Mountains, on the river Ottawa, 9 miles from St. Andrews.

The work of opening the channel to the public wharf or landing, referred to in the report of last year, was continued during July and August, 1882.

## ONTARIO.

## HAWKESBURY.

In the County of Prescott, on the southern side of the Ottawa, four miles below L'Original.

Further dredging in the channel from the main channel in the Ottawa to the public landing at this place, was executed during the fiscal year.

## GANANOQUI.

Gananoqui is at the mouth of the river of that name flowing into the St. Lawrence eighteen miles north-east of Kingston.

With the amount authorized, and the aid of an extemporized drag, a large quantity of slabs and refuse was removed, and a depth sufficient to float vessels engaged in the trade of this harbour, afforded.

## KINGSTON.

Kingston is situated at the outlet of Lake Ontario 172 miles west from Montreal.

During the year the work of removing the top off Point Frederick shoal was vigorously prosecuted, to obtain a depth of 15 feet at low water in Lake Ontario. Owing to the extent of this shoal and the material to be removed being rock in place, at least three years will be required for its effectual removal.

## PORTSMOUTH.

The Harbour of Portsmouth is on Lake Ontario, two miles west of Kingston.

Further dredging to obtain 13 feet depth at low water in Lake Ontario in this harbour was done during the year.

## SALMON RIVER, SHANNONVILLE.

Shannonville is situated on the River Salmon which empties into the Bay of Quinté forty-three miles west of Kingston.

A passage was opened by means of a tug steamer through the saw dust and debris, which had lodged in the channel opened through the bar at the mouth of the river, referred to in the report of last year.

## CONSECON.

Consecon is at the head of Weller's Bay, Lake Ontario, in the County of Prince Edward.

Further dredging has been done on the shoal obstructing the entrance to Consecon Harbour.

## COBOURG.

On Lake Ontario, about ninety-six miles west of Kingston and seventy-two miles east from Toronto.

At the close of the fiscal year about one-third of the work under contract for the extension of the eastern pier in the harbour at this place was completed.

## PORT HOPE.

Port Hope is sixty three miles east from Toronto on the north shore of Lake Ontario.

The extension of the eastern pier has been completed, and at the close of the year the breakwater from the western pier, being built under a contract with Messrs. McNeely and Walters, was well under way.

## PETERBORO'.

The navigation of the River Otonabee below the town of Peterboro', through Little Lake, having become obstructed by the sawdust and mill refuse from the mills on the river, a channel was opened through it during the summer of 1882 by means of the drag which had been used at Gananoque.

## RIVER NAPANEE.

The River Napanee discharges into the Bay of Quinté, Lake Ontario.

A dredge was engaged from 31st July to 30th September, 1882, in opening a channel to 15 feet in depth through two shoals below the town of Napanee, and 23,000 cubic yards of material were removed.

## WHITBY.

Whitby is on the north shore of Lake Ontario, about thirty miles east of Toronto.

The dredging in this harbour, for which an appropriation was made, was commenced on the 29th of May and completed on the 8th September, 1883, obtaining 13 feet of water, by the removal of 18,930 cubic yards of material.

## TORONTO.

The harbour of Toronto on the north shore of Lake Ontario, is 161 miles from Kingston, and thirty-nine miles from Hamilton.

Works for the protection of the eastern side of the harbour, and the protection and preservation of the eastern portion of the Island are being carried on under contract with Messrs. Cooke and Jones, and up to the close of the year most satisfactory progress had been made.

## RONDEAU.

Rondeau is situated at Pointe aux Pins, on the north shore of Lake Erie, 140 miles from Port Colborne, the entrance to the Welland Canal.

During the year the piling constructed by F. B. McNamee & Co., was partially filled with stone, and stone and brush placed in the old channels or passages between the lake and the harbour.

At Bisnett's Creek, which empties into the harbour, a large amount of dredging was done to enable the vessels to enter the creek to load with lumber, grain, &c.

Dredging was also done towards re-opening to its original size and depth the basin immediately within the entrance from the lake.

## KINGSVILLE.

Kingsville, County of Essex, is a port of entry on Lake Erie, between Pointe Pelée and the Detroit River, and about twenty-five miles east of Amherstburg.

In March last the works designed for the construction of a harbour of refuge at this place were commenced, and up to the close of the year were well under way.

## RIVER THAMES.

The River Thames empties into Lake Ste. Claire, and is navigable as far as the town of Chatham.

At its mouth a sand bar exists, blocking the entrance from the lake. During the year a dredge was employed in cutting a channel through it to a depth of 12 feet, removing 26,375 cubic yards of sand and clay.

In the harbour of Chatham the dredge deepened to 12 feet and removed 5,665 cubic yards of hard clay, logs, &c.

## MCGREGOR'S CREEK.

McGregor's Creek empties into the River Thames at the town of Chatham.

During the summer of 1882, a dredge worked for a few weeks in order to obtain a depth of 12 feet, required to permit vessels to reach the elevator and load. Owing to the heights of the banks on either side, this deepening has been the cause of slips, and Barrack Point has had to be protected by sheet piling.

## SYDENHAM RIVER.

The Sydenham has its outlet in Chenal Ecarté, the passage between Ste. Anne's Island and the mainland, Lake Ste. Claire. From its mouth to Wallaceburg it is a navigable stream. Above this point it divides into two branches, north to Wilkesport, fourteen miles, and east past Dresden, fifteen miles, the navigation of which is much obstructed by sunken logs, timber, trees, &c. A commencement has been made in the removal of these obstructions.

## GODERICH.

Is at the mouth of the River Maitland which flows into Lake Huron on its east coast, and is sixty-eight miles from Sarnia at the head of the River Ste. Claire.

Owing to an abandonment by the contractor, the Department was obliged to assume and proceed with the works referred to in the report of last year, for the preservation of the beach between the northern pier and the breakwater, and owing to the delay thus caused, the works at the close of the year were only about one-half completed.

During the extraordinary freshet in April last, damage was done to the breakwater, a large amount of the filling having been carried away, owing to a defect in the foundations. The necessary repairs have been executed.

#### PORT ALBERT.

Port Albert is at the mouth of Nine Mile Creek, on the east shore of Lake Huron, and nine miles from Goderich.

During the year, 3,000 cubic yards of gravel and clay were deposited behind the work on the northern side of the harbour, and 90 lineal feet of close piling driven at the eastern end, with two blocks of crib work to finish with. On the southern side, crib work 60 feet in length was constructed, and repairs done to the existing pile-work.

#### KINCARDINE.

Kincardine is on the east coast of Lake Huron, thirty-one miles north of Goderich.

The works under contract with Messrs. Rooklidge & McLaren, for the protection of the southern side of the entrance to the harbour, were brought to a conclusion in October, 1882. During the heavy storms of last winter, this work received damage, which as soon as possible was repaired. The end of the north pier was damaged in November, 1882, by a schooner striking it during a gale, and also by the ice during the winter. Repairs were being proceeded with at the close of the year.

The dredge "Challenge" removed an accumulation of sand near the north pier.

#### PORT ELGIN.

Port Elgin is in the County of Bruce, on the east coast of Lake Huron, and is distant four miles from Southampton, and twenty-four from Kincardine.

The breakwater at this place, referred to in the Report of last year as being constructed by Messrs. Sutton & McKnight, has been satisfactorily completed. Pending a proposed change in the plan for the improvement of this harbour, the dredging of the northern entrance has been delayed.

#### SOUTHAMPTON.

Southampton is at the mouth of the Saugeen River in the North Riding of Bruce.

A few repairs were made during the year to the breakwater and landing pier at this place.

#### LION'S HEAD.

Lion's Head is situated on Georgian Bay, about thirty-five miles to the northward and westward of Wiarton.

During the month of last June, the dredge "Challenge" opened a passage through a shoal of gravel to admit the entrance of vessels into the deep water on the northern side of the harbour, affording safe shelter in any weather, and also greatly facilitating the shipment of lumber manufactured at this place.

#### WIARTON.

Warton is situated at the head of Colpoy's Bay, about twenty miles from Owen Sound, and is the northern terminus of the Grand Trunk, Georgian Bay and Lake Erie Railway.

The harbour of Wiarton is one of the finest, if not the finest, on Georgian Bay, being protected at its mouth by White Cloud, Griffith's and Hay Islands, and having deep water to within a few feet of the shore, and being unobstructed by rock, reef or shoal.

In November, 1882, a contract was entered into with Mr. David Porter for the construction of a wharf, properly a quay, 1,040 feet in length, with from 14 to 18 feet of water along its face, and at the close of the year three-quarters of the work had been executed.

In addition to the amount of \$35,000 appropriated for this work, the town of Wiarton furnished \$7,500, and the Railway Company the same amount.

#### OWEN SOUND.

Owen Sound is the chief town of the County of Grey, and is situated on an arm of Georgian Bay.

During the year the pile work on either side of the entrance was strengthened by the placing of brush and stone. A length of 3,000 feet of the channel, from a point below the outer light to the southern end of the pile work at the entrance, was dredged to a depth of 18 feet.

#### MEAFORD.

Meaford, on Georgian Bay, lies eighteen miles to the westward of Collingwood and twenty miles to the eastward of Owen Sound.

In November, 1882, a contract was entered into with Mr. Robert Reed for repairing the older or inshore portion of the pier at this place, and up to the 30th June last the work had been about one-half executed.

Dredging to the extent of 11,500 cubic yards was done by the dredge "Challenge."

#### THORNBURY.

Thornbury is situated at the mouth of the Beaver River emptying into Georgian Bay, thirteen miles from Collingwood.

The work of repairing the pier, and opening a basin at this place, referred to in the report of last year, has been completed.

#### COLLINGWOOD.

Collingwood is situated on the southern shore of Georgian Bay, and is distant ninety-four miles from Toronto by rail.

It is the terminus of the Northern and North-Western Railway, and a principal point of departure of steamers plying to Port Arthur.

During the year the work of deepening the entrance to the harbour to admit the entrance of the large class of vessels now sailing the Great Lakes, was continued.

In August, 1882, a contract was entered into for the construction of a length of 600 feet of a breakwater, extending northwardly from the north wharf. At the close of the year three-quarters of this work had been completed.

#### LITTLE CURRENT.

Little Current is the channel between Cloche and Manitoulin Islands on the route to Sault Ste. Marie from Georgian Bay ports, and is distant from Collingwood about 140 miles.

The work of deepening the navigable channel at this place was commenced on the 10th July, and continued until 10th November, 1882, and 3,386 cubic yards of rock were blasted and removed.

There is now a navigable channel for vessels drawing 13 feet, where in previous years a depth of 9 feet only existed.

## MANITOBA.

### RIVER ASSINIBOINE.

The Assiniboine is a tributary of the Red River into which it flows at the City of Winnipeg.

During the past year extensive repairs were made to the wing dams constructed in 1880.

## BRITISH COLUMBIA.

From the Report of the Hon. J. W. Trutch on the public works in British Columbia, it is gathered that eighteen snags obstructing the Fraser River above New Westminster, were removed, the work having being done under contract.

In Victoria harbour the dredge was employed until the 26th January, 1883, in deepening to 14 feet the channel at the entrance through Shoal Point.

## SURVEYS AND EXAMINATIONS.

During the year surveys and examinations were made at the undermentioned localities, and with few exceptions, plans, reports and estimates have been submitted.

Brae	Prince Co.,	P.E.I.
Cape Traverse Cove	do	do
Kier's Cove	do	do
Malpeque	do	do
Summerside Harbour	do	do
Tracadie Harbour,	Queen's Co.,	do
Havre à Boucher,	Antigonish Co.,	N.S.
McNair's Cove,	do	do
Tracadie,	do	do
Victoria Beach,	Annapolis Co.,	do
Cow Bay,	Cape Breton Co.,	do
Debert Beach,	Colchester Co.,	do
Parrsboro' River,	Cumberland Co.,	do
Weymouth Bridge,	Digby Co.,	do
Jeddore to Ship Harbour Lake,	Halifax Co.,	do
Pennant Harbour,	do	do
Sheet Harbour,	do	do
Terrence Bay,	do	do
Maitland,	Hants Co.,	do
Broad Cove,	Inverness Co.,	do
Mabou,	do	do
Malagawatch,	do	do
Militia Point,	do	do
Caribou Island,	Pictou Co.,	do
Smith's Point, Merigomish,	do	do
Harbourville,	King's Co.,	do

Pudding Pan,	Queen's Co.,	N.S.
Little Hope Island,	do	do
Irish Cove,	Richmond Co.,	do
D'Escousse,	do	do
Shaw's Cove	do	do
Ile Madame	do	do
Chapel Cove,	do	do
L'Ardoise,	do	do
West Arichat,	do	do
Yarmouth,	Yarmouth Co.,	do
Sanford,	do	do
Hopewell Cape,	Albert Co.,	N.B.
Upper Salmon River,	do	do
Grande Anse,	Gloucester Co.,	do
Petit Rocher,	do	do
Shippagan,	do	do
Buctouche,	Kent Co.,	do
Cocagne,	do	do
St. Mary's,	do	do
Escuminac,	Northumberland Co.	do
The Jemseg,	Queen's Co.,	do
Swan Creek,	do	do
Fort Dufferin,	St. John Co.,	do
Gardner's Creek,	do	do
Great Salmon River,	do	do
Mispeck River,	do	do
Tynemouth Creek	do	do
Oromocto Island,	Sunbury Co.,	do
Robby's Point,	Westmoreland Co.,	do
Ristigouche River,	Between Counties Ristigouche and Bonaventure,	N.B.—P.Q.
Percé,	Gaspe Co.,	Quebec.
Grand Pabos,	do	do
New Richmond,	Bonaventure Co.,	do
Paspébiac,	do	do
Matane,	Rimouski Co.,	do
Little Métis,	do	do
Les Boules	do	do
Sandy Bay,	do	do
Sault-au-Cochon,	Saguenay Co.,	do
Tadoussac,	do	do
St. Irénée,	Charlevoix Co.,	do
St. Siméon,	do	do
St. Thomas,	Montmagny Co.,	do
Berthier <i>en bas</i> ,	Bellechasse Co.,	do
Lanoraie,	Berthier Co.,	do
Rivière Noire,		do
Rivière Batiscan,		do
Rivière St. François,		do
Queen's Wharf, Quebec,		do
Montreal Harbour, Shearer Scheme,		do
Rivière du Lièvre,		do
Port Stanley,	Elgin Co.,	Ontario.
Bisnett's Creek,	Kent Co.,	do
Mill Creek,	do	do
Rondeau,	do	do
River Thames,	do	do

Little Bear Creek,	Kent Co.,	Ontario.
Kingsville,	Essex Co.,	do
Belle Rivière,	do	do
Sydenham River,	Bothwell, Co.,	do
Bayfield,	Huron, Co.,	do
Goderich,	do	do
Port Albert,	do	do
Kincardine,	Bruce Co.,	do
Inverhuron,	do	do
Port Elgin,	do	do
Southampton,	do	do
Rivière au Sable,	do	do
Lion's Head,	do	do
Colpoys,	do	do
Owen Sound,	Grey Co.	do
Meaford,	do	do
Thornbury,	do	do
Collingwood,	do	do
Port Credit,	Peel Co.,	do
Midland,	Simcoe	do
Water Hen River,		Manitoba.

Surveys were also made and plans prepared for the Chief Architect's Branch, of sites for public buildings at

Arichat,	Richmond Co.,	N.S.
Windsor,	Hants Co.,	do
Carleton,	St. John Co.	N.B.
Moncton,	Westmoreland Co.,	do
Newcastle,	Northumberland Co.,	do
Portland,	St. John Co.,	do

## DREDGING.

### THE "ST. LAWRENCE."

On the 30th June, 1882, this dredge was engaged at Port Caledonia, Cape Breton County, N.S., and remained until the 2nd August, when she left for Little Glace Bay, having removed 5,775 cubic yards of sand, clay and stone. At Glace Bay work was carried on until the 21st September, and 4,550 cubic yards of mud, clay and sea-weed were removed, as well as a number of old piles, timber and rocks. On the 3rd October dredging was commenced at the Deep Water Terminus of the Inter-colonial Railway, Halifax, N.S., and continued until the 28th, when it was found necessary to place the vessel on the marine slip for repairs. This was done, the repairs executed, and work resumed on the 10th November and continued until the 14th December, when it was brought to a close for the winter—4,112½ cubic yards of mud, stones and rock having been removed up to that date.

During the winter the engines and boiler were repaired, and the lower strake of the belting faced with a heavy plating of iron. The steam winches and rigging were also overhauled and put in order.

On the 23rd of April, 1883, work was again resumed at the railway wharves, and continued until the 2nd May, when a further quantity of 1,312½ cubic yards of mud and stone had been removed.

The dredging at this place was both difficult and tedious, as a great depth was demanded and the bottom was composed of a compact mass of mud, gravel, stone and boulders.

On the 10th May, this dredge arrived again at Port Caledonia, and remained until the 18th June, removing a further quantity of 7,000 cubic yards of sand, and

leaving 20 feet of water. On the 19th June, work was commenced at Little Glace Bay, and, up to the close of the fiscal year, 2,887½ cubic yards of mud, stone, &c., had been removed.

The total quantity removed by this dredge during the year was 25,637½ cubic yards, at a cost of 53<sup>26</sup>/<sub>100</sub> cents per yard.

The sum of \$2,925 was received from the Intercolonial Railway for dredging done at Halifax, and deposited to the credit of the Honorable the Receiver General.

#### THE "CANADA."

At the commencement of the fiscal year the "Canada" was working at Sherbrooke, Guysboro County, N.S., and remained until the 8th July, removing only 450 cubic yards of gravel and stone. At this place work could only be carried on between half-flood and half-ebb tide, and the dredged material had to be taken ten miles to a place of deposit. On the 15th July work was commenced at Cocagne, N.B., for the improvement of the entrance to the harbour, and continued until 9th September, when 12,780 cubic yards of mud and shells were removed. On the 11th September work was commenced at Priest's Point in the Harbour of Buctouche, and completed on 10th October, and 3,510 cubic yards of mud removed. On the last mentioned date this dredge was taken to Chapel Point in the same harbour, and up to the 15th November, removed 4,140 cubic yards of mud. The small quantity of 45 yards of mud was removed at Robertson's wharf.

On the 24th November, the "Canada" was placed on the marine slip at Pictou, N.S., and during the winter necessary repairs were effected. A new four-bladed screw was put on, which resulted in an increase of speed.

On the 2nd May, 1883, dredging at the loading pier of the Acadia Coal Company, Pictou harbour, was commenced, and up to the 19th, 3,240 cubic yards of clay and mud were removed. On this last date, a widening of the channel leading to the public market wharf, Pictou, was commenced, and finished on the 22nd, when 720 cubic yards of mud had been removed. On the 25th of May, work was commenced in the harbour of Shediac, N.B., in removing obstructions and lumps in the channel and near the Intercolonial Railway wharf, and up to the 30th June, 1883, 7,650 cubic yards of mud and shells had been removed.

During the year this dredge removed 32,435 cubic yards of materials, at a cost of 31<sup>64</sup>/<sub>100</sub> cents per yard.

#### THE "NEW DOMINION."

The new hull for this dredge, referred to in the report of last year, was finally completed, and the dredge handed over by the contractor on 17th August, 1882. On 31st August, operations were commenced at McMann's Cove, Grand Lake, N.B., a large and important branch of the River St. John, and up to the 26th October, 20,440 cubic yards of clay, sand, mud and stone had been removed, and a channel from the main channel completed up to and around the public wharf or landing.

This dredge was placed in winter quarters at St. John, N.B., and early in the spring, such repairs as were found to be necessary were executed.

On the 12th May, 1883, dredging was commenced at the public wharf at Digby, N.S., and up to the close of the fiscal year 6,235 cubic yards of clay, blue mud and stone had been removed. Owing to the range of the tide at Digby—from 25 to 30 feet—and the fact that the dredge is arranged to dig to a depth of 18 feet only, about three hours was all the time that could be worked during a tide, hence delay and increased expense.

The total quantity dredged during the year, is 26,675 cubic yards, at a cost of 22<sup>12</sup>/<sub>100</sub> cents per yard.

#### THE "CAPE BRETON."

On the 1st July, 1882, the "Cape Breton" was operating at the mouth of the Tatamagouche River, Colchester Co., N.S., and remained until the 23rd October, up to

which date a further quantity of 19,500 cubic yards of sand and mud had been removed.

On the 28th October, work was commenced in Pictou harbour, in opening a channel to and around the public market wharf, and continued until the 24th November, when work ceased for the season, 13,350 cubic yards of mud having been removed.

During the winter extensive repairs were made on the dredge hull and machinery, and to the scows attached to the dredge.

Work for the season of 1883, commenced on the 10th May in the harbour of Pictou, near Shaw's brick yard, Middle River. On the 30th May work at this place ceased, when 3,070 cubic yards of mud had been removed. On the 5th June work in front of the ship-yards, River John, was completed by the removal of 2,795 cubic yards of mud. At Mabou dredging on the shoal outside the entrance to the harbour was commenced on the 12th June, and continued up to the close of the fiscal year, and 4,060 cubic yards of materials removed.

The total quantity removed during the year was 42,775 cubic yards, at a cost of  $27\frac{22}{100}$  cents per yard.

The sum of \$10 was received from the sale of old materials from this dredge, and placed to the credit of the Honorable the Receiver General.

#### THE "PRINCE EDWARD."

At the commencement of the fiscal year this dredge was working at South Murray Harbour, King's County, P.E.I., and up to the 26th October a further quantity of 39,015 cubic yards of sand and mud had been removed.

For repairs the "Prince Edward" was taken to Pictou, N.S., and prior to closing of the harbour was utilized in the public market slip, removing 10,830 cubic yards of mud between the 3rd and 24th November.

During the winter extensive repairs were made to the hull and machinery, as well as to the scows and water boat.

On the 11th May, 1883, this dredge arrived in the Harbour of Charlottetown, and commenced work in opening a channel to the ferry wharf, Rocky Point, and was so engaged at the close of the year, when 29,520 cubic yards of soft mud and sand had been removed.

The total quantity of materials dredged during the year amounted to 79,365 cubic yards, and the cost per yard  $16\frac{16}{100}$  cents.

#### THE "GEO. MCKENZIE."

This dredge left Mabou early in July, 1882, and arrived and commenced work on the 8th at Grand Goulet, Richmond County, N.S., in opening a channel through the inner and outer bars, completing the work on the 14th October, removing 23,584 cubic yards of sand, mud, gravel, clay, stone and rock. Between the 18th October and the 25th November, several shoal points in the River Bourgeois were deepened, and 18,920 cubic yards of mud, clay, sand and stone removed.

After a stormy and dangerous passage, this dredge reached Halifax, N.S., on the 13th January, and after the necessary alterations were made in the machinery to permit dredging being done at a depth of 31 feet, work for the Intercolonial Railway was commenced on the 26th January, and, with several intervals for necessary repairs to the dredge and machinery, continued to the close of the fiscal year, up to which date 11,225 cubic yards of rock, mud, clay, gravel and boulders were removed. This work proved to be very difficult and trying to the dredge.

The total number of cubic yards of materials removed during the year was 53,729, at a cost of  $23\frac{62}{100}$  cents per yard.

The sum of \$40 received for old chain and scrap sold from this dredge has been placed to the credit of the Honorable the Receiver-General.

## THE "CHALLENGE."

On the 1st July, 1882, this dredge was operating in the harbour of Goderich in deepening to 10 feet along the wharfing, and continued until the 3rd August, having removed 8,400 cubic yards of gravel, clay and sand. On the 18th August the work of opening a passage through the bar of shifting sand at the mouth of the Au-Sable River was commenced, and brought to a close on the 8th of September, when 5,350 cubic yards of fine sand were removed. On the 23rd September this dredge arrived at Thornbury, Georgian Bay, and commenced to work on behalf of the contractor for harbour works at that place on the 26th, remaining until the 26th October, when, owing to the lateness of the season and the exposed position of the work, the plant was ordered to Meaford. At Thornbury 10,000 cubic yards of gravel and boulders were removed. Between the 27th October and 1st December, 1882, and the 19th April and the 1st May, 1883, 11,500 cubic yards of clay, gravel and boulders were removed from the harbour of Meaford in obtaining 12 feet of water. On the 2nd May work was resumed at Thornbury and continued until the 29th, up to which date a further quantity of 6,750 cubic yards of gravel and boulders were removed, thus making the total amount of material removed to obtain a depth of 12 feet in this harbour equivalent to 16,750 cubic yards.

After repairs had been effected in the drydock at Collingwood, the "Challenge" was sent to Lion's Head Harbour, near the northern extremity of the Bruce peninsula, arriving and commencing work on the 15th June, in opening a passage through a shoal of gravel to admit vessels into the deep water on the northern side of the harbour. At the close of the fiscal year 5,950 cubic yards of clean gravel had been removed.

The total quantity removed by this dredge during the year was 47,950 cubic yards at a cost of  $15\frac{43}{100}$  cents per yard.

## THE "NIPISSING."

On the 1st July, 1882, the "Nipissing" commenced operations at the Beaudet Soulanges County, Quebec, in deepening over the bar at the mouth, and the channel of the river nearly to the highway bridge, to 7 feet in depth, and removing 20,775 cubic yards of clay and sand. Work at this place was brought to a close on the 2nd October, and on the 11th it was resumed at Hawkesbury on the Ottawa, and continued until the 6th November. On the 7th November operations at Grenville were commenced; on the 18th they were brought to a close, and 2,119 cubic yards of gravel and boulders were removed.

This dredge wintered at Ottawa, when necessary repairs were effected. Soon after the opening of navigation last spring work was commenced at Hawkesbury, and at the close of the fiscal year a total quantity of 10,676 cubic yards of sand, gravel, clay and boulders had been removed from the channel leading to that place.

Two new side-dumping scows were built during the year, and attached to this dredge.

A total quantity of 33,570 cubic yards of materials of different kinds were removed during the year, at a cost of  $16\frac{8}{100}$  cents per yard.

## THE "QUEEN OF CANADA."

At the beginning of the fiscal year this dredge was working at Laprairie deepening around the front and sides of the public wharf, and the channel leading thereto from the main channel of the St. Lawrence to 7 feet at low water, and remained there until the 18th November, when it was removed and placed in winter quarters in the Wellington Basin, Lachine Canal, Montreal.

After the usual repairing and outfitting in the spring, work was resumed at Laprairie and continued to the 30th June, 1883.

The materials removed at Laprairie were hard packed gravel, sand, boulders, &c., and amounted to 17,125 cubic yards, costing  $30\frac{3}{4}$  cents per yard.

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"No. 1" (ELEVATOR).

For the prosecution of the work of extending the channel from the main channel of the Ottawa to the public wharf at St. Placide, P.Q., commenced by the "Nipissing" during 1881-82, Dredge "No. 1" was obtained from the Harbour Commissioners of Montreal, and put to work on 1st July, 1882, closing on the 12th August, when it was found that the water in the Lake of Two Mountains had fallen to such an extent as to render it necessary to remove the plant which was taken to St. Charles on the Richelieu and thence to Sorel, from whence it had been obtained, and handed back to the Harbour Commissioners.

The total quantity removed by this dredge was 14,000 cubic yards, and the cost per yard 19½ cents.

"THE DREDGER"—BRITISH COLUMBIA.

At the commencement of the fiscal year, this dredge was operating off Shoal Point at the entrance to Victoria Harbour, and continued working until the 26th January, 1883, when, owing to the appropriation having become exhausted, the plant was laid up. Various necessary repairs were made to the dredge and tug "Georgie," and the whole placed in readiness to resume work on the shoal on the 1st of last July.

Two punts (mud scows) were built during the year by contract, and added to the plant.

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DREDGING PLANT.

The dredging plant belonging to the Department is as follows:—

IN THE MARITIME PROVINCES.

The steam hopper dredge—"St. Lawrence."

" " " "Canada."

The dipper " " "New Dominion," and eight scows.

" " "Cape Breton," and five "

" " "Prince Edward," and six "

" " "Geo. McKenzie," and four "

IN QUEBEC.

The dipper dredge—"Queen of Canada," two scows and stone lifter.

" " "Nipissing," two scows and steam tug "Dennis."

The stone lifter—"Baillairgé."

IN ONTARIO.

The dipper dredge—"Challenge," two scows and steam tug "Trudeau."

IN BRITISH COLUMBIA.

An elevator dredge and six scows.

The steam tug—"Georgie."

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## CLASSIFICATION of Disbursements of the following Dredges, during the Year ended 30th June, 1883.

## "ST. LAWRENCE."

Items.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages ....	556 81	512 42	512 44	513 28	508 33	502 43	470 65	447 30	433 33	448 55	515 59	495 66	5,916 69
Coal .....	261 90	.....	100 50	.....	.....	112 50	126 00	.....	.....	.....	.....	.....	600 90
Provisions .....	351 01	164 01	315 72	202 90	186 61	164 58	108 54	112 08	149 15	148 33	.....	142 36	2,045 29
Stores .....	.....	57 43	4 95	.....	.....	366 65	.....	.....	.....	.....	.....	.....	429 03
Equipment .....	107 38	.....	.....	165 02	.....	.....	.....	.....	.....	.....	.....	.....	272 40
Water .....	.....	.....	6 25	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 25
Repairs .....	.....	7 20	.....	.....	.....	2,146 44	.....	.....	.....	.....	.....	.....	3,262 19
Pilotage .....	56 00	48 00	117 00	78 00	45 00	42 00	.....	.....	.....	520 37	588 18	.....	515 00
Contingencies .....	15 32	17 51	10 19	57 02	2 36	5 51	.....	.....	.....	21 00	78 00	30 00	129 20
Totals .....	1,349 02	806 57	1,067 05	1,016 32	742 30	3,339 91	705 19	559 38	582 48	1,142 74	1,197 97	668 02	13,176 95
Working expenses .....	1,349 02	806 57	1,067 05	1,016 32	742 30	1,193 47	.....	.....	.....	622 37	609 79	668 02	8,074 91
Repairs, ordinary .....	.....	.....	.....	.....	.....	2,146 44	705 19	559 38	582 48	520 37	588 18	.....	5,102 04
do extraordinary .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals .....	1,349 02	806 57	1,067 05	1,016 32	742 30	3,339 91	705 19	559 38	582 48	1,142 74	1,197 97	668 02	13,176 75

## CLASSIFICATION of Disbursements of the following Dredges, &amp;c.—Continued.

## "CANADA."

Items.	June & July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	796 00	398 00	381 28	373 00	373 00	373 00	373 00	373 00	366 90	395 19	398 00	398 00	4,998 37
Coal.....	593 11	239 15	239 15	169 95	56 70	56 70	56 70	56 70	71 26	79 24	122 05	122 05	1,058 91
Provisions.....	104 47	119 79	100 59	89 31	72 78	118 49	38 10	137 21	71 26	79 24	122 05	122 05	1,053 29
Stores.....	.....	49 05	.....	.....	.....	6 84	.....	.....	.....	.....	.....	.....	55 89
Equipment.....	.....	18 50	.....	169 32	.....	.....	.....	81 38	.....	.....	.....	.....	269 20
Water.....	.....	2 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 00
Repairs.....	.....	.....	7 36	30 00	.....	.....	.....	.....	145 98	74 25	1,116 16	285 67	1,659 42
Pilotage.....	100 50	67 50	65 00	65 00	61 94	.....	.....	.....	.....	.....	55 00	65 00	479 94
Wharfage.....	5 50	52 50	.....	3 08	.....	82 50	.....	.....	.....	6 20	26 74	.....	143 58
Contingencies.....	.....	30 29	.....	.....	21 87	.....	.....	.....	.....	.....	.....	.....	85 10
Totals.....	1,599 58	688 58	842 43	999 66	529 59	637 53	411 10	591 59	584 14	554 88	1,717 95	748 67	9,805 70
Working expenses.....	1,599 58	688 58	842 43	999 66	529 59	637 53	411 10	591 59	584 14	554 88	1,717 95	748 67	9,805 70
Repairs, ordinary.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,742 79
Totals.....	1,599 58	688 58	842 43	999 66	529 59	637 53	411 10	591 59	584 14	554 88	1,717 95	748 67	9,805 70

## "NEW DOMINION."

Wages.....	145 00	277 66	523 79	511 30	199 72	82 34	147 50	140 00	147 50	254 23	440 25	471 58	3,340 87
Coal.....	.....	.....	74 43	89 25	.....	.....	.....	.....	.....	.....	3 00	283 50	372 75
Stores.....	.....	.....	346 63	.....	.....	.....	9 05	.....	.....	.....	.....	.....	77 43
Equipment.....	.....	.....	42 56	.....	.....	11 10	.....	.....	.....	.....	.....	.....	355 68
Water.....	.....	.....	.....	.....	70 91	.....	.....	.....	.....	154 99	822 96	.....	11 10
Repairs.....	.....	.....	130 00	6 00	6 00	.....	.....	.....	.....	.....	.....	.....	6 00
Pilotage.....	.....	.....	30 00	150 00	.....	.....	.....	.....	.....	.....	.....	.....	280 00
Towage.....	.....	.....	21 29	.....	.....	3 55	.....	.....	.....	.....	.....	.....	30 00
Wharfage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31 63	.....	56 47
Contingencies.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	145 00	277 66	1,168 70	600 55	426 63	96 99	156 55	140 00	147 50	409 22	1,297 84	755 08	5,621 72
Working expenses.....	.....	.....	728 22	600 55	426 63	.....	.....	.....	.....	.....	474 88	755 08	3,263 02
Repairs, ordinary.....	145 00	.....	.....	.....	.....	96 99	156 55	140 00	147 50	409 22	822 96	.....	1,918 22
do extraordinary.....	.....	.....	440 48	.....	.....	.....	.....	.....	.....	.....	.....	.....	440 48
Totals.....	145 00	277 66	1,168 70	600 55	426 63	96 99	156 55	140 00	147 50	409 22	1,297 84	755 08	5,621 72

## "CAPE BRETON."

Wages.....	1,041 29	475 10	448 94	530 27	496 00	195 00	147 50	140 00	147 50	911 38	458 25	418 71	5,469 94
Coal.....	108 90		78 20	19 29	48 67	34 19							235 77
Stores.....			6 03										53 48
Equipment.....	142 00		148 00	44 00	77 66						11 00		6 03
Water.....						91 40					198 26	930 37	422 66
Repairs.....	600 00	750 00	237 50	600 00	736 00	18 16				1,008 50		55 00	2,228 53
Towage.....											24 00		2,978 50
Contingencies.....													42 16
Totals.....	1,892 19	1,225 10	918 67	1,193 56	1,358 33	338 75	147 50	140 00	147 50	1,919 88	691 51	1,404 08	11,377 07
Working expenses...	1,892 19	1,225 10	918 67	1,193 56	1,358 33	338 75					493 25	473 71	7,554 81
Repairs, ordinary....							147 50	140 00	147 50	1,919 88	198 26	930 37	3,822 26
Totals.....	1,892 19	1,225 10	918 67	1,193 56	1,358 33	338 75	147 50	140 00	147 50	1,919 88	691 51	1,404 08	11,377 07

## "PRINCE EDWARD."

Wages.....	689 00	527 75	524 50	524 50	568 44	145 00	147 50	140 00	147 50	1,057 60	464 36	540 95	5,467 10
Coal.....	249 15		69 92		40 98	22 00							382 05
Stores.....			111 01			1 48	28 18	28 18					168 85
Equipment.....			66 55		59 04						5 00		71 55
Water.....		28 07	419 53			95 00				379 01	837 41	5 00	92 11
Repairs.....	35 65		40 00										1,766 59
Pilotage.....					964 76								40 00
Towage.....			2,775 00	425 00	20 00	3 98		13 00					4,164 76
Contingencies.....			5 12								25 92		68 02
Totals.....	973 80	555 82	3,941 71	1,019 42	1,643 22	267 46	175 68	181 18	147 50	1,436 61	1,332 68	545 95	12,221 03
Working expenses...	973 80	555 82	3,522 18	1,019 42	1,643 22							495 28	8,755 67
Repairs, ordinary....			419 53			267 46	175 68	181 18	147 50	1,436 61	837 40		3,465 36
Totals.....	973 80	555 82	3,941 71	1,019 42	1,643 22	267 46	175 68	181 18	147 50	1,436 61	1,332 68	545 95	12,221 03

## CLASSIFICATION of Disbursements of the following Dredges, &amp;c.—Continued.

"GEO. MCKENZIE."

Items.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	947 99	487 75	484 50	484 50	483 95	435 74	490 63	478 00	504 75	472 81	487 75	484 50	6,232 87
Coal.....	175 20	.....	.....	.....	72 60	.....	16 00	.....	.....	.....	.....	.....	263 80
Stores.....	103 60	.....	50 02	.....	14 14	.....	103 31	.....	.....	.....	71 66	.....	342 73
Equipment.....	.....	.....	30 84	.....	.....	.....	.....	.....	.....	.....	.....	.....	30 84
Water.....	5 25	.....	.....	.....	.....	.....	6 63	31 38	26 75	21 63	21 50	.....	113 14
Repairs.....	43 00	.....	23 46	.....	.....	.....	116 30	.....	126 41	49 60	9 15	184 91	552 83
Towage.....	350 00	1,137 50	600 00	600 00	750 00	.....	800 00	.....	.....	.....	.....	.....	4,237 50
Wharfage.....	.....	.....	.....	.....	20 00	.....	.....	.....	.....	.....	.....	.....	30 86
Contingencies.....	17 63	13 50	6 90	.....	.....	30 25	20 00	164 00	20 27	.....	10 00	.....	282 55
Totals.....	1,642 67	1,638 75	1,195 72	1,084 50	1,340 69	455 99	1,552 87	673 38	678 18	544 04	600 06	680 27	12,087 12
Working Expenses..	1,599 67	1,638 75	1,172 26	1,084 50	1,340 69	455 99	1,436 55	673 38	551 77	494 44	590 91	495 36	11,434 29
Repairs, Ordinary..	43 00	.....	23 46	.....	.....	.....	116 30	.....	126 41	49 60	9 15	184 91	552 83
Totals.....	1,642 67	1,638 75	1,195 72	1,084 50	1,340 69	455 99	1,552 87	673 38	678 18	544 04	600 06	680 27	12,087 12

"NIPISSING."

Wages.....	479 42	455 72	421 20	426 00	343 52	31 00	31 00	28 00	31 00	181 14	366 59	415 77	3,210 36
Coal.....	150 70	.....	.....	87 36	.....	.....	.....	.....	.....	.....	.....	.....	238 06
Wood.....	159 80	264 00	182 50	68 25	42 00	.....	.....	.....	.....	.....	.....	241 80	958 35
Stores.....	12 35	76 55	.....	2 70	1 65	.....	.....	.....	.....	53 20	61 88	17 70	226 03
Equipment.....	.....	33 92	17 50	.....	.....	.....	.....	.....	.....	40 00	114 10	.....	205 52
Repairs.....	14 35	84 09	7 05	2 50	.....	10 75	61 21	.....	15 31	222 93	251 87	85 81	755 87
Pilotage.....	.....	.....	.....	6 10	.....	.....	.....	.....	.....	.....	.....	.....	6 10
Towage.....	.....	.....	.....	1 50	.....	.....	.....	.....	.....	.....	.....	.....	1 50
Contingencies.....	14 70	12 06	3 65	1 82	2 28	.....	.....	.....	.....	.....	5 43	0 52	40 45
Total.....	831 32	926 34	631 90	596 23	389 45	41 75	92 21	28 00	46 31	497 27	799 87	761 60	5,542 25
Working Expenses..	816 97	842 25	624 85	593 73	389 45	31 00	31 00	28 00	31 00	274 34	548 00	675 79	4,886 38
Repairs, Ordinary..	14 35	51 11	7 05	2 50	.....	10 75	40 00	.....	.....	96 42	251 87	25 28	499 43
do Extraordinary	.....	32 88	.....	.....	.....	.....	21 21	.....	15 31	126 51	.....	60 53	256 44
Totals.....	831 32	926 34	631 90	596 23	389 45	41 75	92 21	28 00	46 31	497 27	799 87	761 60	5,542 25

## "QUEEN."

Items.	July.	August.	Sept.	October.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	531 94	560 05	595 91	542 46	407 52	44 00	31 00	28 00	31 00	30 00	265 06	547 28	3,614 22
Coal.....	.....	180 72	.....	118 08	.....	.....	.....	.....	.....	.....	54 08	156 44	509 32
Wood.....	.....	10 50	.....	5 24	.....	.....	.....	.....	.....	.....	.....	.....	15 74
Stores.....	17 38	4 06	10 68	6 16	.....	.....	.....	.....	.....	38 00	66 11	28 56	170 95
Equipment.....	.....	.....	17 94	.....	.....	.....	.....	.....	.....	.....	3 00	26 33	47 27
Repairs.....	251 55	79 19	86 38	32 50	14 45	12 50	.....	.....	.....	150 59	393 53	53 01	1,073 80
Towage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	85 00	.....	85 00
Contingencies.....	5 95	.....	.....	.....	3 60	.....	.....	.....	.....	.....	.....	.....	9 55
Totals.....	806 92	834 52	710 91	704 44	425 57	56 50	31 00	28 00	31 00	218 59	866 78	811 62	5,525 85
Working Expenses.	555 27	755 33	624 53	671 94	411 12	44 00	31 00	28 00	31 00	68 00	473 25	758 61	4,452 05
Repairs, Ordinary...	251 65	79 19	28 63	32 50	14 45	12 50	.....	.....	.....	5 20	54 54	53 01	531 69
do Extraordinary	.....	.....	57 73	.....	.....	.....	.....	.....	.....	145 39	338 99	.....	542 11
Totals.....	806 92	834 52	710 91	704 44	425 57	56 50	31 00	28 00	31 00	218 59	866 78	811 62	5,525 85

## "CHALLENGE."

Wages.....	340 00	340 00	340 00	340 00	340 00	106 79	40 00	40 00	40 00	288 49	333 89	333 00	2,882 17
Coal.....	78 75	154 09	201 19	.....	.....	.....	.....	.....	.....	.....	.....	228 00	662 03
Wood.....	62 00	31 50	160 00	.....	172 50	.....	.....	.....	.....	178 75	122 50	63 00	790 25
Provisions.....	125 55	106 75	244 55	28 05	121 50	40 50	.....	.....	.....	88 20	126 45	116 80	998 35
Stores.....	15 38	10 45	8 87	.....	20 60	25 90	.....	.....	.....	121 85	.....	.....	203 05
Equipment.....	30 00	210 93	.....	.....	.....	.....	.....	.....	35 00	52 75	248 29	15 25	592 22
Repairs.....	33 58	44 31	2 40	37 50	105 21	.....	17 30	.....	75 00	206 62	105 33	288 49	915 74
Pilotage.....	.....	.....	200 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	20 00
Towage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	90 00	290 00
Contingencies.....	.....	18 80	14 40	3 50	.....	.....	.....	.....	.....	10 05	.....	5 75	52 50
Totals.....	685 26	916 83	1,191 41	409 05	759 81	173 19	57 30	40 00	150 00	946 71	936 46	1,140 29	7,406 31
Working Expenses.	651 68	872 52	1,189 01	371 55	654 60	173 19	40 00	40 00	75 00	740 09	831 13	851 80	6,490 57
Repairs, Ordinary...	83 58	44 31	2 40	37 50	67 96	.....	.....	.....	75 00	145 77	105 33	.....	511 85
do Extraordinary	.....	.....	.....	.....	37 25	.....	17 30	.....	.....	60 85	.....	288 49	403 89
Totals.....	685 26	916 83	1,191 41	409 05	759 81	173 19	57 30	40 00	150 00	946 71	936 46	1,140 29	7,406 31

CLASSIFICATION OF DISBURSEMENTS OF THE FOLLOWING DREDGES, ETC.—CONCLUDED.

“ No. 1. ”

Items.	July.	August.	Septemb'r.	October.	November.	December.	January.	Feb'y.	March.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	292 00	269 85	71 22										633 07
Coal.....		166 47											166 47
Wood.....	9 00	38 06											47 06
Provisions.....	132 00	125 26	16 79										274 05
Stores.....	3 30												3 30
Repairs.....	13 88	22 00											35 88
Towage.....	616 00	568 00	78 00		202 00								1,464 00
Wharage.....	16 15												16 15
Contingencies.....	5 59	22 50	82 00										110 09
Totals.....	1,087 92	1,212 14	248 01		202 00								2,750 07
Working expenses..	1,074 04	1,190 14	248 01		202 00								2,714 19
Repairs—Ordinary .	13 88	22 00											35 88
Totals.....	1,087 92	1,212 14	248 01		202 00								2,750 07

CLASSIFICATION AND QUANTITIES OF MATERIALS REMOVED BY THE FOLLOWING DREDGES, DURING THE YEAR ENDED 30th JUNE, 1883.

“ ST. LAWRENCE. ”

DESCRIPTION OF MATERIAL DREDGED.	July.	August.	Septemb'r.	October.	Novemb'r.	Dec'ber.	Jan'y.	Feb'y.	March.	April.	May.	June.	Grand Totals.
Hard-pan.....				1,093½	262	700½				525	130½	1,443½	Cub. yds. 4,155
Clay and stone.....	225												225
Sand—Ordinary.....	5,550		350								3,150	3,850	12,900
Sea-weed, piles, old timber and mud ..		3,850	350	1,094	263	699½					132		3,850
Mud.....			700	2,187½	525	1,400				1,050	3,412½	6,737½	4,507½
Totals ...	5,775	3,850											25,637½



CLASSIFICATION and Quantities of Material removed by the following Dredges—*Continued.*

"PRINCE EDWARD."

DESCRIPTION OF MATERIAL DREDGED.	July.	August.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
Sand—ordinary .....	2,805	6,950	10,180	1,545	.....	.....	.....	.....	.....	.....	2,055	.....	23,535
Mud.....	8,490	.....	2,520	6,255	10,830	.....	.....	.....	.....	.....	8,355	19,380	55,830
Totals.....	11,295	6,950	12,700	7,800	10,830	.....	.....	.....	.....	.....	10,410	19,380	79,365

"GEO. MCKENZIE."

Hard-pan .....	368½	.....	946	308	.....	.....	137	1155	1,661	352	572	1,430	6,229½
Boulders.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	110	.....	110
Gravel.....	654½	3,025	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,679½
Clay and Stone.....	.....	3,960	3,314	1,540	2,464	.....	.....	538	.....	94	110	660	13,530
Sand—ordinary .....	5,725½	1,749	.....	7,172	9,284	.....	.....	187	451	.....	1,408	1,540	7,474½
Mud.....	1,963½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22,005½
Totals.....	8,712	8,734	4,290	9,020	11,748	.....	137	1,870	2,112	1,276	2,200	3,630	53,729

"NIPISSING."

Hard-pan .....	.....	.....	375	.....	1,059	.....	.....	.....	.....	.....	.....	647	1,022
Boulders.....	.....	.....	750	.....	1,080	.....	.....	.....	.....	.....	75	597	2,481
Gravel.....	.....	.....	525	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,885
Clay .....	675	7,150	4,212	562	.....	.....	.....	.....	.....	.....	75	243	12,917
Clay and Stone.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	590	590
Sand—ordinary .....	4,950	950	2,838	713	1,350	.....	.....	.....	.....	.....	1,500	2,674	14,975
Totals.....	5,625	8,100	7,050	2,925	3,469	.....	.....	.....	.....	.....	1,650	4,751	33,570

"QUEEN."

[illegible]

"CHALLENGE."

[illegible]

"NO. 1."

[illegible]

## EXPENDITURE for Dredging in Prince Edward Island for the Eleven Years ended June 30th, 1883.

COUNTY.	LOCALITY.	Total for the Ten Years ended 30th June, 1882.			For the Year 1882-3.			Total Quantity.	Total Cost.	Cost for each County.				
		Quantity.	Cost	Cost for County.	Quantity.	Cost.	Cost for County.							
C. yds.	\$	cts.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.				
King's.	Grand River .....	46,110	8,963	97	.....	.....	.....	46,110	8,963	97				
	Montague River .....	106,140	17,119	43	.....	.....	.....	106,140	17,119	43				
	Murray Harbour — South .....	5,415	1,070	59	27,153	99	.....	44,430	7,378	33				
	Charlottetown Railway Wharf do Ferry .....	41,303	10,261	56	.....	.....	.....	41,303	10,264	56				
Queen's.	Crapaud .....	300	43	48	.....	.....	.....	300	43	48				
	Pownal .....	75,970	19,151	46	.....	.....	.....	75,970	19,151	46				
	Rocky point .....	41,970	9,197	62	.....	.....	.....	41,970	9,197	62				
	Vernon River .....	21,360	3,096	29	.....	.....	.....	50,880	7,868	92				
	Wood Islands .....	17,860	6,326	72	.....	.....	.....	17,860	6,326	72				
	Nine Mile Creek .....	2,780	548	00	.....	.....	.....	2,780	548	00				
	Hickey's Wharf .....	31,650	6,286	46	.....	.....	.....	31,650	6,286	46				
	Carr's Point .....	750	150	51	.....	.....	.....	750	150	51				
	Pinette .....	12,165	2,441	28	.....	.....	.....	12,165	2,441	28				
	Fort Augustus .....	3,825	756	24	.....	.....	.....	3,825	756	24				
	.....	3,195	631	68	58,894	30	.....	3,195	631	68				
		410,793	86,048	29	86,048	29	68,535	11,080	37	479,328	97,128	66	97,128	66

## EXPENDITURE for Dredging in Quebec for the Eleven Years ended 30th June, 1883, from Appropriations for Maritime Provinces.

Magdalen Islands.	House Harbour .....	6,800	2,392 92	.....	.....	6,800	2,392 92	.....	.....
	Gaspé Co. ....	495	242 05	2,634 97	.....	495	242 05	2,634 97	.....
Temiscouata Co. ....	Amherst do .....	2,587½	825 47	825 47	.....	2,587½	825 47	825 47	.....
	Rivière du Loup .....	9,882½	3,460 44	3,460 44	.....	9,882½	3,460 44	3,460 44	.....

EXPENDITURE for Dredging in Nova Scotia, for the Eleven Years ended 30th June, 1883.

County.	Locality	Total for Ten Years ended 30th June, 1882.			For the Year 1882-83.			Total Quantity.	Total Cost.		Cost for each County.	
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.		\$	cts.		
Antigonish .....	Antigonish .....	C. yds.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.	\$	cts.
	Antigonish .....	22,025	3,649 15	.....	.....	.....	.....	22,025	3,649 15	.....	.....	.....
	Havre à Boucher .....	10,568	2,498 48	.....	.....	.....	.....	10,568	2,498 48	.....	.....	.....
	Tracadie .....	2,580	675 26	6,822 89	.....	.....	.....	2,580	675 26	6,822 89	.....	.....
Cape Breton .....	Lingan .....	22,267	9,275 56	.....	.....	.....	.....	22,267	9,275 56	.....	.....	.....
	Sydney .....	54,600	17,781 54	.....	.....	.....	.....	54,600	17,781 54	.....	.....	.....
	Little Glace Bay .....	17,762	4,755 56	.....	7,437	4,013 36	.....	25,200	8,763 82	.....	.....	.....
	Port Caledonia .....	4,637	1,348 20	33,160 86	12,775	6,894 01	10,907 37	17,412	8,242 21	41,068 23	.....	.....
Colchester .....	Tamagouche .....	24,000	5,418 82	5,418 82	19,500	5,445 49	5,445 49	43,500	10,864 31	10,864 31	.....	.....
Cumberland .....	Parrsboro' .....	28,945	7,804 68	.....	8,190	2,500 00	2,500 00	37,135	10,304 68	.....	.....	.....
	Wallace .....	50,885	9,908 28	17,712 96	.....	.....	.....	50,885	9,908 28	20,212 96	.....	.....
Digby .....	Digby .....	.....	.....	.....	6,235	1,379 61	1,379 61	6,235	1,379 61	1,379 61	.....	.....
	Guy'sboro' .....	5,400	1,413 53	.....	.....	.....	.....	5,400	1,413 53	.....	.....	.....
Halifax .....	Larry's River .....	26,230	6,516 70	.....	.....	.....	.....	26,230	6,546 70	.....	.....	.....
	Port Mulgrave .....	2,160	782 00	.....	.....	.....	.....	2,160	782 00	.....	.....	.....
	Sherbrooke .....	810	334 10	9,956 33	450	142 39	142 39	1,260	496 49	9,238 72	.....	.....
	Chezetcook .....	3,920	2,593 71	.....	.....	.....	.....	3,920	2,593 71	.....	.....	.....
Halifax .....	Halifax Ferry .....	6,177	2,063 38	.....	.....	.....	.....	6,177	2,061 38	.....	.....	.....
	Herring Cove .....	12,111	8,015 05	.....	.....	.....	.....	12,111	8,015 05	.....	.....	.....
	Ketch Harbor .....	2,939	985 59	.....	.....	.....	.....	2,939	985 59	.....	.....	.....
	Roches Wharf .....	1,750	620 28	.....	.....	.....	.....	1,750	620 28	.....	.....	.....
Inverness .....	Halifax Railway Terminus .....	.....	.....	14,278 01	16,650	5,578 91	5,578 91	16,650	5,578 91	19,856 95	.....	.....
	Cheticamp .....	54,135	11,731 08	.....	.....	.....	.....	54,135	11,731 08	.....	.....	.....
	Mabou .....	13,892	9,233 69	20,964 77	4,060	1,133 79	1,133 79	17,952	10,367 48	22,098 56	.....	.....
	Lunenburg .....	29,070	10,849 66	.....	.....	.....	.....	29,070	10,849 66	.....	.....	.....
Lunenburg .....	Malone Bay .....	21,814	5,958 65	.....	.....	.....	.....	21,814	5,958 65	.....	.....	.....
	Vogler's Cove .....	11,610	5,075 53	21,883 84	.....	.....	.....	11,610	5,075 53	21,883 84	.....	.....

EXPENDITURE for Dredging in Nova Scotia, for the Eleven Years ended 30th June, 1883.

County.	Locality.	Total for Ten Years ended 30th June, 1882.			For the Year 1882-83.			Total Quantity.	Total Cost.		Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.		\$	cts.	
Pictou.	Acadia Coal Co's. Wharf.....	C. yds. 7,000	\$ 2,535 00	\$ cts. .....	C. yds. 3,240	\$ cts. 1,025 26	\$ cts. .....	C. yds. 10,240	\$ 3,560 26	cts. .....	\$ cts. .....
	Albion Mines.....	9,475	2,181 25	.....	.....	.....	.....	9,475	2,181 25	.....	.....
	East River.....	88,870	19,559 53	.....	.....	.....	.....	88,870	19,559 53	.....	.....
	Halifax Coal Co's. Wharf.....	1,650	359 90	.....	.....	.....	.....	1,650	359 90	.....	.....
	Pictou Public Wharf.....	7,020	1,726 72	.....	24,900	5,766 84	.....	31,920	7,433 56	.....	.....
	do Railway do.....	29,889	9,264 29	.....	.....	.....	.....	29,889	9,264 29	.....	.....
	do Landing.....	2,970	1,366 92	.....	.....	.....	.....	2,970	1,366 92	.....	.....
	Vale Colliery Wharf.....	1,395	682 15	.....	.....	.....	.....	1,395	682 15	.....	.....
	River John and Shipyard and Bar.....	78,337	18,614 02	.....	2,795	780 53	.....	81,132	19,394 55	.....	.....
	Middle River.....	3,330	996 39	.....	3,070	857 32	8,369 95	6,400	1,853 71	.....	.....
Queen's	New Glasgow.....	26,310	5,705 59	62,991 26	.....	.....	.....	26,310	5,705 09	71,361 21	.....
	Liverpool.....	12,940	4,762 38	4,762 38	.....	.....	.....	12,940	4,762 38	4,762 38	.....
	D'Escoisse and Cape la Ronde St. Peter's Canal.....	7,000	2,576 20	.....	.....	.....	.....	7,000	2,535 20	.....	.....
Richmond	Grand Goulet.....	72,616	22,164 76	24,699 96	23,584	5,570 49	.....	72,616	22,164 76	.....	.....
	River Bourgeois.....	.....	.....	.....	18,920	4,468 87	10,039 26	23,584	5,570 49	.....	.....
	Lockport.....	20,825	6,334 85	6,334 85	.....	.....	.....	18,920	4,468 87	34,739 32	.....
Shelburne	Yarmouth.....	42,517	13,687 25	13,687 25	.....	.....	.....	20,825	6,334 85	6,334 85	.....
Yarmouth	Windsor.....	5,450	1,627 60	1,627 60	.....	.....	.....	42,517	13,687 25	13,687 25	.....
Hants	.....	847,962	243,441 78	243,441 78	151,086½	45,496 93	45,496 93	5,450	1,627 60	1,627 60	.....
								999,768½	288,938 71	288,938 71	.....

EXPENDITURE for Dredging in New Brunswick for the Eleven Years ended 30th June, 1883.

County.	Locality.	Total for the Ten Years ended 30th June, 1882.			For the Year 1882-83.			Total Quantity.	Total Cost.		Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.		\$	cts.	
		C. yds.	\$	\$	C. yds.	\$	\$	C. yds.	\$	cts.	\$
Gloucester .....	Bathurst .....	72,607½	20,629 52	20,629 52	.....	.....	.....	72,607½	20,629 52	.....	20,629 52
Kent .....	Richibucto .....	47,735	14,299 54	.....	.....	.....	.....	47,735	14,299 54	.....	.....
	Cocagne .....	1,800	786 90	.....	.....	.....	.....	14,580	4,831 02	.....	.....
	Buctouche .....	13,005	4,934 24	20,020 68	12,780	4,044 12	.....	13,005	4,934 24	.....	.....
	do Priest's Point .....	.....	.....	.....	3,510	1,110 70	.....	3,510	1,110 70	.....	.....
	do Chapel Point .....	.....	.....	.....	4,140	1,310 07	.....	4,140	1,310 07	.....	.....
	do Robert's Wharf .....	.....	.....	.....	45	14 23	6,479 12	45	14 23	.....	26,199 80
Northumberland .....	Horse Shoe, Miramichi .....	153,767½	42,294 23	42,294 23	.....	.....	.....	153,767½	42,294 23	.....	42,294 23
Queen's .....	Grand Lake .....	34,160	6,375 44	.....	*20,440	4,522 82	.....	.....	.....	.....	.....
	do McMann's Cove .....	.....	.....	.....	.....	.....	.....	54,600	10,898 26	.....	.....
	Jemseg .....	45,720	10,256 88	.....	.....	.....	.....	45,720	10,256 88	.....	.....
St. John .....	Washademoak .....	48,975	6,340 83	22,973 15	.....	.....	4,522 82	48,975	6,340 83	.....	21,495 97
	St. John, I. C. R. terminus .....	139,810	37,130 01	.....	.....	.....	.....	139,810	37,130 01	.....	.....
	do Navy Island .....	6,300	2,754 17	.....	.....	.....	.....	6,300	2,754 17	.....	.....
	Marble Cove .....	29,925	4,374 40	.....	.....	.....	.....	29,925	4,374 40	.....	.....
	Barnhill & Murray's .....	9,310	1,360 93	45,619 51	.....	.....	.....	9,310	1,360 93	.....	45,619 51
Sunbury .....	Oromocto .....	107,003	22,671 12	22,671 12	.....	.....	.....	107,003	22,671 12	.....	22,671 12
	Pointe du Chêne .....	3,240	796 94	796 94	7,650	2,420 76	2,420 76	10,890	3,217 70	.....	3,217 70
Westmoreland .....	Fredericton .....	39,395	7,699 15	7,699 15	.....	.....	.....	39,395	7,699 15	.....	7,699 15
York .....	*Dredge "New Dominion," in 1880-81 .....	.....	777 84	777 84	.....	.....	.....	.....	777 84	.....	777 84
		752,753	183,482 14	183,482 14	48,565	13,422 70	13,422 70	801,318	196,904 84	.....	196,904 84

\* Dredge not in commission, 1880-81; the above expenses for caretaking and repairs.

DREDGE STATEMENT showing Material removed at different Localities; Total Annual Expenditure on each Dredge, and Average Cost per cubic yard.

'CHALLENGE.'									
Localities.	Hard Pan.	Clay and Stone.	Sand, Ordinary.	Sand, Fine.	Clay.	Gravel.	Boulders.	Mud.	Totals.
Goderich.....	.....	650	1,050	.....	.....	6,100	.....	.....	7,800
Au Sauble.....	.....	.....	1,900	4,050	.....	.....	.....	.....	5,950
Thornbury.....	.....	.....	.....	.....	.....	9,300	7,450	.....	16,750
Meaford.....	.....	.....	.....	.....	3,675	6,425	1,400	.....	11,500
Lion's Head.....	.....	.....	.....	.....	.....	5,950	.....	.....	5,950
	.....	650	2,950	4,050	3,675	27,775	8,850	.....	47,950
Total Annual Expenditure.....				\$7,406.21	Cost per cubic yard..... 15 $\frac{1}{2}$ cents.				
'NIPISSING.'									
River Beaudet.....	.....	.....	8,738	.....	12,037	.....	.....	.....	20,775
Hawkesbury.....	1,022	590	6,237	.....	880	525	1,422	.....	10,676
Grenville.....	.....	.....	.....	.....	.....	1,060	1,059	.....	2,119
	1,022	590	14,975	.....	12,917	1,585	2,148	.....	33,570
Total Annual Expenditure.....				\$5,634.25	Cost per cubic yard..... 16 $\frac{8}{10}$ cents.				

## DREDGING STATEMENT showing Material removed at different Localities, &amp;c.—Continued.

## "QUEEN."

Localities.	Hard Packed Gravel.	Clay and Stone.	Sand, Ordinary.	Sand, Fine.	Clay.	Gravel.	Boulders.	Mud.	Totals.
Laprairie.....	3,350	.....	975	.....	.....	9,175	4,425	.....	17,925

Total Annual Expenditure..... \$5,525.85 Cost per cubic yard..... 30 $\frac{3}{4}$  cents.

## "NO. 1," (Elevator.)

Localities.	Hard Pan.	Clay and Stone.	Sand, Ordinary.	Sand, Fine.	Clay.	Gravel.	Clay and Boulders.	Mud.	Totals.
St. Placide.....	.....	.....	480	.....	.....	.....	13,520	.....	13,520
St. Charles.....	.....	.....	480	.....	.....	.....	13,520	.....	14,000

Total Annual Expenditure..... \$2,750.07 Cost per cubic yard..... 19 $\frac{1}{2}$  cents.

## DETAILS of Dredging in the Maritime Provinces

Dredge.	Locality.	County.	NEW BRUNSWICK.		
			Quantity.	Cost.	Total Cost.
			C. yds.	\$ cts.	\$ cts.
"New Dominion"	Grand Lake, McMann's Cove Digby.....	Queen's .....	20,440	4,522 82	4,522 82
"Canada"	Sherbrooke.....	Guysboro' .....			
	Cocagne .....	Kent.....	12,780	4,044 12	
	Buctouche, Priest's Point....	do .....	3,510	1,110 70	
	do Chapel do .....	do .....	4,140	1,310 07	
	do Robertson's Wh'f .....	do .....	45	14 23	
	Pictou, Acadia Coal Co.'s do .....	Pictou.....			
	do Public Wharf .....	do .....			
	Point du Chêne.....	Westmoreland.....	7,650	2,420 76	8,899 88
"Cape Breton"	Tatamagouche .....	Colchester.....			
	Pictou Public Wharf.....	Pictou.....			
	River John.....	do .....			
	Mabou .....	Inverness.....			
	Middle River.....	Pictou.....			
"Prince Edward"	Murray Harbour .....	King's.....			
	Pictou Public Wharf.....	Pictou.....			
	Rocky Point .....	Queen's.....			
"St. Lawrence"	Caledonia .....	Cape Breton.....			
	Glace Bay.....	do .....			
	Halifax Railway Terminus...	Halifax.....			
"Geo. McKenzie"	Grand Goulet.....	Richmond .....			
	River Bourgeois.....	do .....			
	Halifax Railway Terminus...	Halifax.....			
By hand.....	Partridge Island, River improvements .....	Cumberland .....			
			48,565		13,422 70

Dredge.	NEW BRUNSWICK.		NOVA SCOTIA.	
	Quantity.	Cost.	Quantity.	Cost.
	C. yds.	\$ cts.	C. yds.	\$ cts.
"New Dominion"	20,440	4,522 82	6,235	1,379 64
"Canada"	28,125	8,899 88	4,410	1,395 49
"Cape Breton"			42,775	11,945 20
"Prince Edward"			10,830	1,750 93
"St. Lawrence"			25,637½	13,834 97
"Geo. McKenzie"			53,729	12,690 70
	48,565	13,422 70	143,616½	42,996 93

for the Year ended 30th June 1883

NOVA SCOTIA.			PRINCE EDWARD ISLAND.			Quantity by each Dredge.	Total. Expenditure.
Quantity.	Cost.	Total Cost.	Quantity.	Cost.	Total Cost.		
C. yds.	\$ cts.	\$ cts.	C. yds.	\$ cts.	\$ cts.	C. yds.	\$ cts.
6,235	1,379 64	1,379 64				26,675	5,902 46
450	142 39						
3,240	1,025 26						
720	227 84	1,395 49				32,535	10,295 37
19,500	5,445 49						
13,350	3,728 07						
2,795	780 53						
4,060	1,133 79						
3,070	857 32	11,945 20				42,775	11,945 20
10,830	1,750 93	1,750 93	39,015	6,307 74			
			29,520	4,772 63	11,080 37	79,365	12,831 30
12,775	6,894 01						
7,437½	4,013 36						
5,425	2,927 60	13,834 97				25,637½	13,834 97
23,584	5,570 49						
18,920	4,468 87						
11,225	2,651 34	12,690 70				53,729	12,690 70
8,190	2,500 00	2,500 00				8,190	2,500 00
151,806½		45,496 93	68,535		11,080 37	268,906½	70,000 00

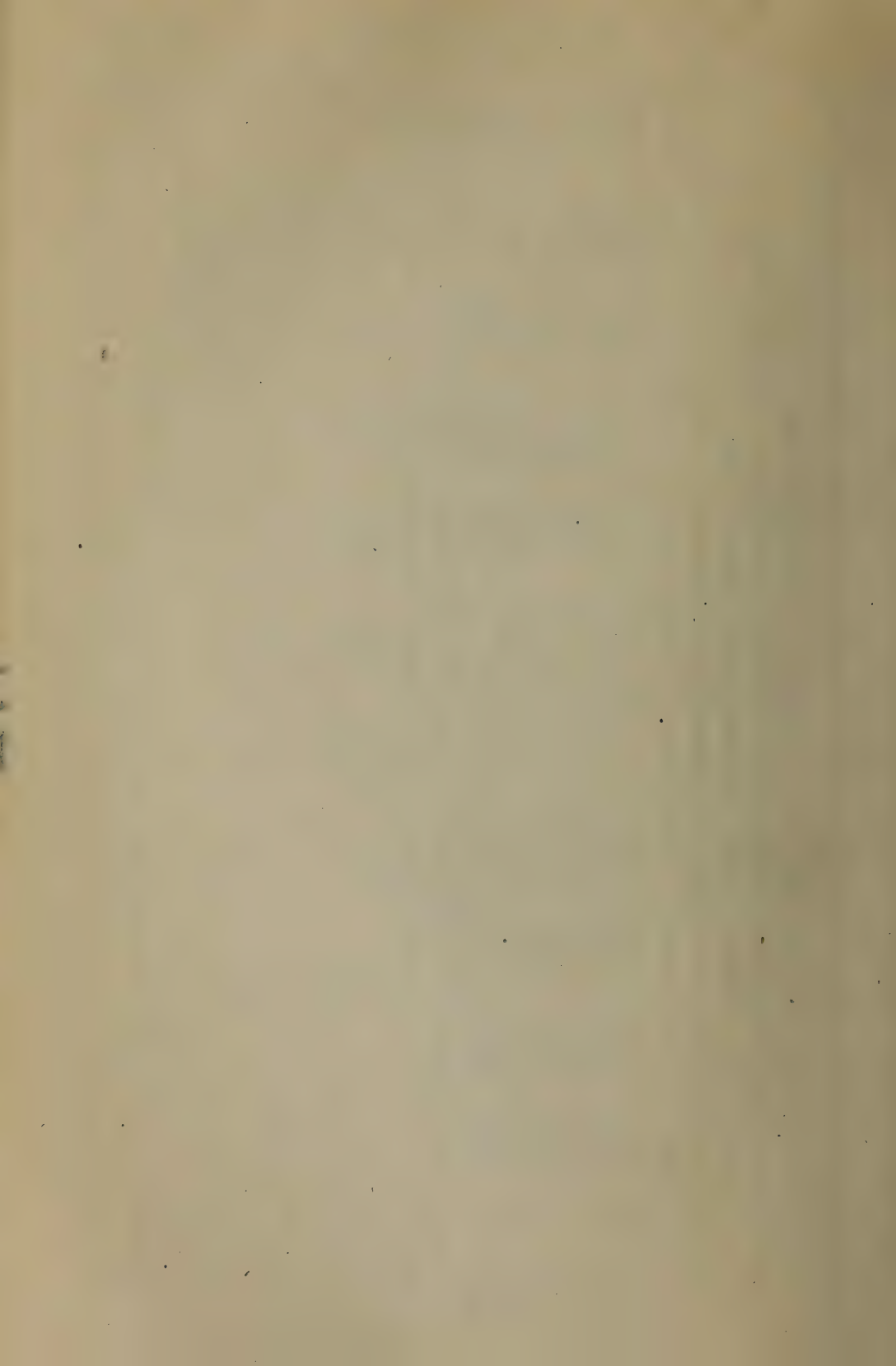
PRINCE EDWARD ISLAND.		Total Quantity.	Expenditure Dredging.	Superinten- dence.	Total Expenditure	Cost per Cubic yard.
Quantity.	Cost.					
C. yds.	\$ cts.	C. yds.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
		26,675	5 621 72	280 74	5,902 46	22·127
		32,535	9,805 70	489 67	10,295 37	31·643
		42,775	11,377 07	568 13	11,945 20	27·925
68,535	11,080 37	79,365	12,221 03	610 27	12,831 30	16·167
		25,637½	13,176 95	658 02	13,834 97	53·965
		53,729	12,087 12	603 58	12,690 70	23·619
68,535	11,080 37	260,716½	64,289 59	3,210 41	67,500 00	25·8901

STATEMENT of Dredging in the Maritime Provinces, showing quantities removed by and expenditure of each Dredge for the Eleven Years ended 30th June, 1883.

Dredge.	Total quantity and cost for the Ten Years, from 1872-73 to 1881-82.				1882-83.				Total for Eleven Years ended 30th June, 1883.			
	Total Quantity.	Total cost.	Per cubic yard.		Quantity.	Cost.	Per cubic yard.		Quantity.	Cost.	Per cubic yard.	
	C. yds.	\$ cts.	\$	cts.	C. yds.	\$ cts.	\$	cts.	C. yds.	\$ cts.	\$	cts.
"New Dominion"	394,498	78,096 90	0.197	965	26,675	5,902 46	0.22	127	421,173	83,999 36	0.19	944
"Canada"	307,754	103,730 82	0.337	057	32,535	10,295 37	0.31	643	340,289	114,026 19	0.33	508
"Cape Breton"	366,188	87,046 03	0.237	708	42,775	11,945 20	0.27	925	408,963	98,991 23	0.24	205
"Prince Edward"	410,798	86,048 29	0.209	464	79,365	12,831 30	0.16	167	490,163	98,879 59	0.20	173
"St. Lawrence"	370,191½	107,185 99	0.289	545	25,637½	13,834 97	0.53	965	395,829	121,020 96	0.30	574
"Geo. McKenzie"	137,571	44,889 39	0.326	299	53,729	12,690 70	0.23	619	191,300	57,580 09	0.30	699
	1,987,000½	506,997 42	0.25½	157	260,716½	67,500 00	0.258	901	2,247,717	574,497 42	0.25	560

STATEMENT of dredging showing Quantities removed in each Province, and cost of such Dredging for the Eleven Years ended 30th June, 1883.

Fiscal Year.	New Brunswick.		Nova Scotia.		Quebec.		Prince Edward Island.		Total Quantity.	Total Expenditure.		Cost per Cubic Yard.
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.				
	C. yds.	\$	cts	C. yds.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.
1872-73.....	38,060	13,240 50	23,260	8,422 70	.....	.....	.....	.....	.....	61,320	21,663 20	0 35 328
1873-74.....	57,725	14,395 57	18,600	6,545 61	.....	.....	.....	.....	.....	83,125	23,334 10	0 28 071
1874-75.....	78,223	17,325 05	24,416	13,238 83	6,800	2,392 92	18,655	9,892 89	121,294	40,456 77	0 33 354	0 33 354
1875-76.....	79,935	17,040 52	91,974	21,885 90	.....	.....	58,283	10,891 80	230,192	49,818 22	0 21 642	0 21 642
1876-77.....	97,690	23,161 90	127,785	34,346 74	.....	.....	74,460	12,753 27	299,935	70,766 91	0 23 594	0 23 594
1877-78.....	81,070	23,323 92	106,857	29,607 94	.....	.....	82,860	12,011 18	270,787	64,943 04	0 23 983	0 23 983
1878-79.....	132,555	27,400 22	116,307	28,267 59	.....	.....	46,490	9,164 07	295,352	64,831 88	0 21 950	0 21 950
1879-80.....	63,540	16,581 79	127,684	34,765 84	765	374 08	36,390	12,674 98	228,379	64,396 69	0 28 197	0 28 197
1880-81.....	44,315	12,385 85	87,117	23,061 64	2,317	693 44	46,335	9,298 53	180,035	45,439 46	0 25 232	0 25 232
1881-82.....	79,640	18,626 87	89,566	33,363 71	.....	.....	47,325	9,356 57	216,531	61,347 15	0 28 331	0 28 331
1882-83.....	48,565	13,422 70	143,616	42,996 93	.....	.....	68,535	11,080 37	260,716	67,500 00	0 25 890	0 25 890
Totals.....	801,318	196,904 89	957,183	277,003 43	9,882	3,460 44	479,333	97,128 66	2,247,717	574,497 42	0 25 559	0 25 559



APPENDIX No. 5.

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UPPER OTTAWA IMPROVEMENT.

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REPORT ON THE TWO PROPOSITIONS,

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1st. To dam the river at Mountain Rapids so as to form still water navigation to the head of Lake Témiscamingue, 90 miles ;

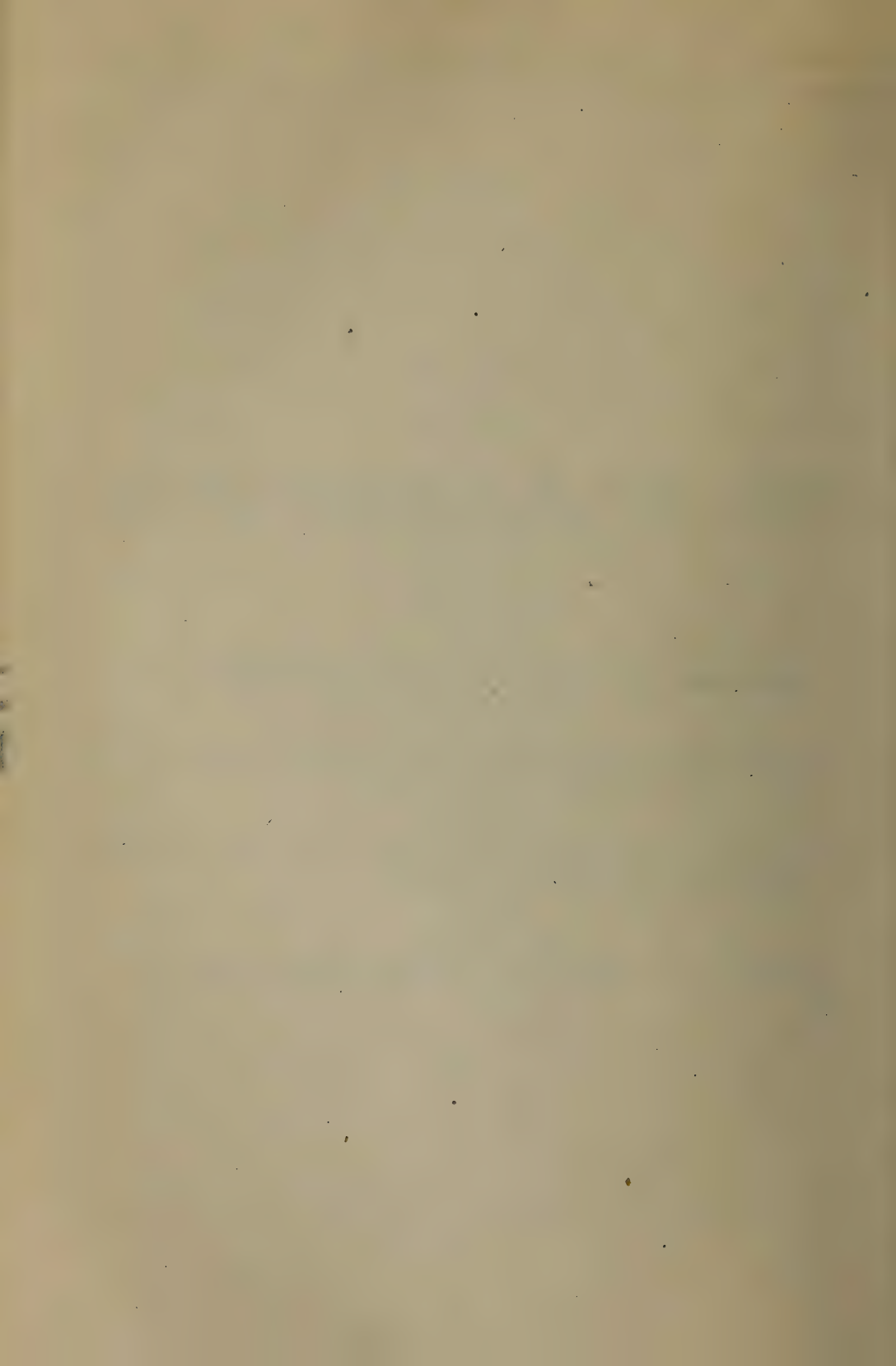
AND

2nd. To dam up Lake Témiscamingue so as to form a reservoir for supplying the Ottawa River during the period of low water.

BY

HENRY F. PERLEY, CHIEF ENGINEER.

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## APPENDIX No. 5.

## UPPER OTTAWA IMPROVEMENT.

(Ref. No. 21,274.)

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 16th February, 1882.

SIR,—I beg leave to submit the following relative to certain works asked for on the Upper Ottawa, with a view to its improvement, and in the interest of the lumber trade of the Ottawa valley.

The works asked for are for the benefit of two different and distinct objects.

1st. To increase the length of navigable waters above the confluence of the Mattawa, by placing a dam at the head of the Mountain Rapids, and thus to obliterate the Long Sault, and create comparatively still water extending to the head of Lake Temiscamingue, a distance of say ninety miles, and for some miles as well up the Rivière Blanche, thus bringing navigation by steamers to a point within twelve miles of the Canadian Pacific Railway at Mattawa.

2nd. To place a dam at the foot of Lake Témiscamingue for the purpose of raising the water in the lake to a certain height (to be hereafter determined) above its normal level, with the object of holding such water until the occurrence of the period when that in the Ottawa at any point in its course to the Chaudière Falls, has fallen so low as to impede or prevent the running of timber and logs, and then, by the raising of gates or opening of sluices, to permit the water or a portion of it so penned up to pass into the river, and thus to flush the logs and timber down the stream.

It will thus be seen that these proposals, so far as the objects for which they are designed are concerned, are antagonistic to each other, and that both have in view the improvement of the river (*a*) for the benefit of those directly interested in the maintenance of the lumber trade, and (*b*) those who desire the development of the country now beyond the reach of the ordinary modes of conveyance, &c., and at the same time to benefit the lumber trade by the facilities thus to be provided.

Above the mouth of the Mattawa, it may be said that the Ottawa can only be traversed during the open season by canoe, involving many portages. About five miles above the Mattawa, occur the Portage de la Cave and the Portage de la Chaudière, overcoming the rapids bearing these names, which have an united fall of  $11\frac{3}{4}$  feet. From the head of the Chaudière rapid to the Rapide-aux-Érables, which falls 13 feet, is four miles, and at a further distance of four miles, or thirteen from Mattawa, is the Mountain rapids, which have a fall of 5 feet 5 inches, and it is at their head that it is proposed to construct a dam for navigation purposes.

Between the Mountain Rapids and the foot of the Long Sault lies Seven League Lake, which is merely a portion of the river, possessing a gentle current flowing between bluff and rocky shores.

The Long Sault is six miles in length, and consists of eleven falls and rapids having an united fall of 48 feet, flowing through a contracted and crooked channel. From its foot to about a mile below Pemican Creek (a distance of twelve miles) Lake Temiscamingue is but a wider portion of the Ottawa, but from the point last named to its head, a distance of say sixty miles, it possesses all the characteristics of a lake widening at its upper part to five miles, and receiving on its northern side and about

midway of its length, the waters of the Kippewa, and at its head those of the Blanche and the Quinze, at the mouths of which and around the shores of the lake is low lying land producing marsh grass in considerable quantities.

The proposal to improve the river for the purposes of navigation was brought to the notice of the Honourable the Minister, and during the fall of 1880, an Engineer was despatched to make an examination of the river between the Mountain Rapids and the Long-Sault, but before accomplishing his work, he was stricken down with illness which ended in death, and, as reported to you under date 11th November, 1880 (No. 9,208), the Assistant Engineer completed the survey, but not being acquainted with the instructions given to the late Mr. Lindsay, did not obtain the information it was necessary should be obtained to enable a full report to be made on the subject. The fall of the Long-Sault was verified to 43 feet as before stated, but I had not sufficient data to enable me to determine the height of the dam required to flood out these rapids, and create in their place a current not possessing a strength sufficient to impede or interrupt the navigation of the river, thus improved, by steamers or other craft. Neither was I furnished with any information relative to the nature of the country bordering the banks of the river or of the streams falling into it on either side, to permit me to judge whether serious damage might or might not occur, due to a permanent rise in this part of the river, for it must not be forgotten that besides this permanent rise, a further rise of from 15 to 18 feet takes place during the periods of freshets, which would perhaps flood portions of the country to a greater or less extent, which are now entirely beyond the reach of any rise in the river. Again provision would have to be made for the passage of timber over this dam and possibly through the whole length of the Mountain Rapids, by the construction of a slide or slides, the magnitude of these works being dependent on whether the timber from the lake and Kippewa would come to the dam in cribs or in single pieces. Wanting all this information and much more that I had not enumerated, I suggested that further examinations should be made during the past year, but no action was taken thereon.

Last year, owing to the unusual drought which prevailed throughout Ontario and the western part of Quebec, the water fell abnormally low, so much so, that there was not at many points sufficient to float logs and timber, some thousands of pieces of which "hung up" and could not be brought to the mills at Ottawa, or for transmission to Quebec or elsewhere. This want of water was much felt at the mills at Ottawa, which, in consequence, only ran for half the usual time.

This want of water was the cause of those interested in the lumber trade to suggest the building of a dam at the foot of Lake Temiscamingue to raise it in height and maintain it at the new level, the water so impounded to be let off when, for want of water on the lower reaches of the Ottawa, it was found to be difficult, if not impossible, to "drive" timber, as the water thus discharged would sweep all before it. (See No. 17,612).

During the past summer a survey was made at the foot of Lake Temiscamingue to obtain information on which to base an estimate of the probable cost of the dam required, &c.

With respect to the preparation of the plans of this dam, or an estimate of its cost, I have to state that I have not done anything, and I must acknowledge that I refrained from doing anything, because the more I studied the problem to be solved, the more I became aware that I did not possess all the data necessary for its solution. Thus, I desire to be assured that when the water to be retained in Lake Temiscamingue should be let off in quantities great or small, that its effects should be felt at the point where they are required; as for instance at a point on the river 200 miles below the dam, which is, say, 240 miles above Ottawa.

If the channel of the river was of one width and depth, and did not have any streams emptying into it, then we could fairly assume that the whole of the water, minus loss by evaporation and infiltration, which passed through the dam, would find its way with the increased height and velocity due to the quantity discharged into the channel, and do and perform the duties required of it. This state of things

does not exist, for we know that the Ottawa is a river of varying breadths and depths, broken by rapids and falls, and swelling into long stretches of placid water, and having many streams, large and small, emptying into it, and therefore much—possibly all of the water judged by those in charge at the dam to be sufficient for the purpose required, would be lost on its way down, absorbed in the spreading reaches and lakes of the river, and in flowing up its lateral streams and branches.

Before anything is done in the construction of works, it is necessary that this question of the probable loss of water should be determined by an examination of the river from the Chaudière to Lake Témiscamingue, and of the streams and rivers emptying into it on either side, with the view of ascertaining *first*, the general characteristics of the river along the length indicated; *second*, the points at which it is probable or possible the timber and logs will stick for want of water, and, *third*, whether the streams above these points might not be dammed and their waters impounded and used as occasion might demand.

For these reasons I do not offer any plans for carrying out the improvements herein described as necessary or required, nor estimates of their probable cost, for I feel that the questions left to my decision are such as to demand from me the utmost care and the exercise of all my knowledge and skill in their solution, and I know that I cannot, with the limited information at my command, undertake even to give an opinion as to the feasibility of either of the schemes proposed.

I have the honor to be, Sir,

Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

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#### MEMORANDUM—UPPER OTTAWA RIVER.

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(Ref. No. 33,644.)

CHIEF ENGINEER'S OFFICE,  
DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 12th April, 1883.

Two projects for the improvement of the Ottawa above the confluence of the Mattawa River have been submitted to the Department, and preliminary examinations have been made and reports furnished.

These projects have different ends in view.

The first submitted to the Department was the construction of a dam at the Mountain Rapids, twelve miles above the mouth of the Mattawa, to a sufficient height to obliterate the Long Sault Rapids, which have a total fall of 49 feet, the object being to create still water navigation to the head of Lake Témiscamingue, a distance of ninety miles; and it is claimed that steamers can ply for some distance up the Rivière Blanche, emptying into the head of the lake.

The second proposal was the construction of a dam at the foot of Lake Témiscamingue for the purpose of raising and maintaining the water in the lake at a height not greater than 15 feet above its normal summer level until the water in the Ottawa had reached its summer stage, when the waters so impounded in the lake could be discharged into the river for the double purpose of floating timber and maintaining a supply to the mills at the Chaudière Falls at Ottawa.

It may thus be seen that these two projects are antagonistic. If the dam were built at the Mountain Rapids for the purposes of navigation, then the river below for milling and rafting purposes would remain as it is at present and no advantage would be derived by the mill owners at the Chaudière.

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If the second proposal were carried out, then, as regards navigation, the river would remain as it now stands.

I am not prepared, for the want of information—information only to be obtained after a most thorough and careful examination of the river from the Mountain Rapids to Ottawa, the cost of which would not be less than \$5,000 (see my letter of 16th February, 1882. No. 21,274)—to offer an opinion as to the feasibility of the scheme for making Lake Temiscamingue a reservoir for feeding the Ottawa during periods of low water; neither can I estimate the cost of a dam at the Mountain Rapids, and its probable effects on the country at the foot of Lake Témiscamingue without further and extended examination. Either of these projects would involve an expenditure ranging from \$250,000 to \$500,000; for, as I believe that it would be unwise to construct the works of wood, or any perishable material, they should be built—if built at all, in a most solid and enduring manner so as to ensure their permanence and a minimum cost for annual repairs.

HENRY F. PERLEY,  
*Chief Engineer.*

APPENDIX No. 6.

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REPORT ON THE IMPROVEMENT

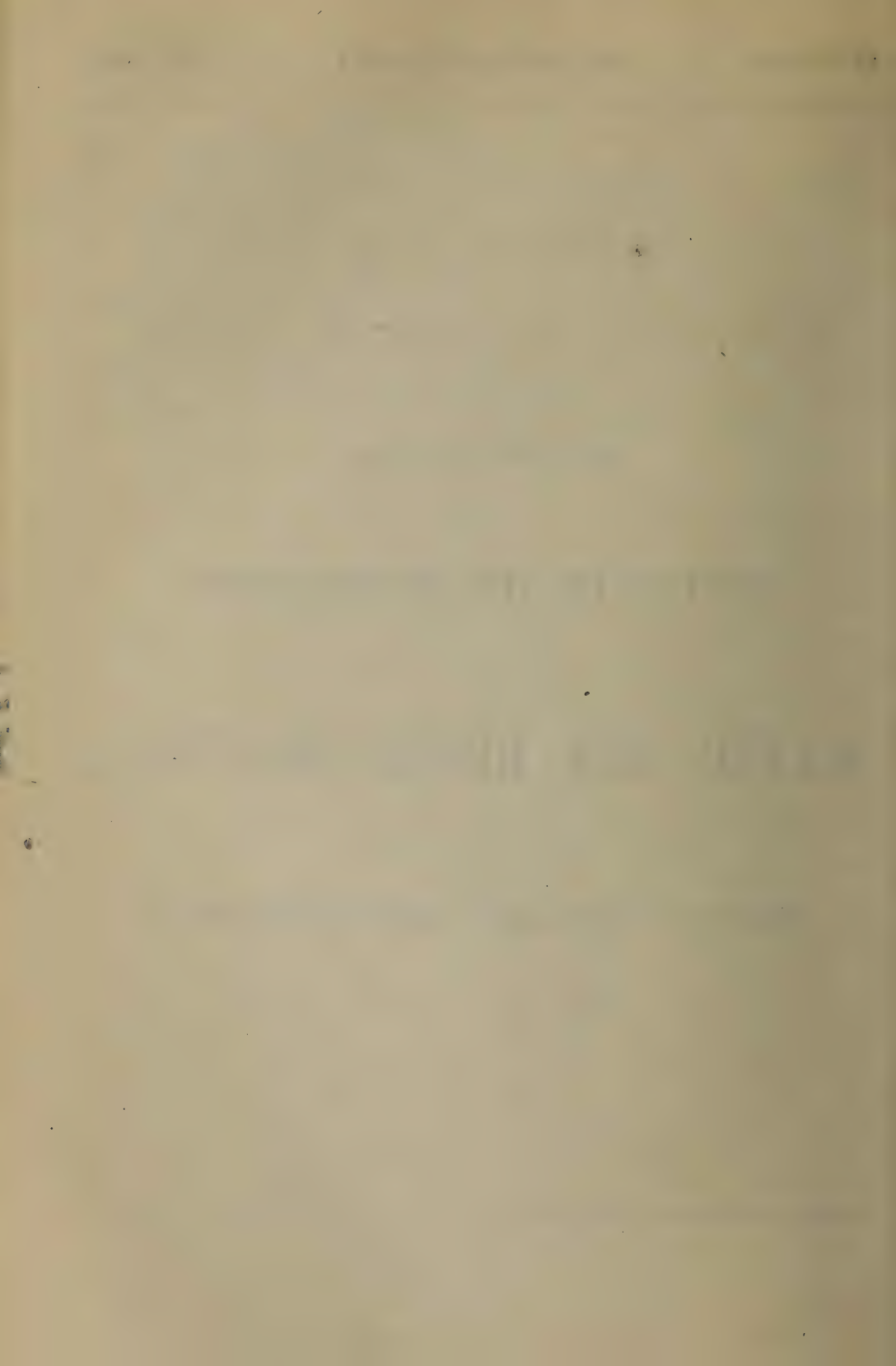
OF THE

WATER HEN RIVER, MANITOBA.

BY

HENRY F. PERLEY, CHIEF ENGINEER.

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## APPENDIX No. 6

### SURVEY OF THE WATER HEN RIVER, MANITOBA.

(Ref. No., 21,677.)

CHIEF ENGINEER'S OFFICE,  
PUBLIC WORKS DEPARTMENT,  
OTTAWA, 27th February, 1882.

SIR,—Mr. Scott, M.P., in No. 21,491, requests that an appropriation of \$25,000 be made for the purpose of deepening portions of the Water Hen River, Manitoba, with the view, it is assumed, of facilitating the descent or passage of timber into Lake Manitoba.

The question of disturbing the equilibrium, which now exists in this river is one demanding most serious consideration.

I have lately submitted a report on the causes of the flooding of Lake Manitoba, and the means to be adopted for reducing the water in that lake and maintaining it for the future at its normal level. I stated that Lake Manitoba had an area of 1,900 square miles, and received the waters of only two rivers, viz., the White Mud at its southern extremity and the Water Hen at the northern end; the outlet from the lake (called the Fairford River) flows into Lake St. Martin and thence, through the Little Saskatchewan into Lake Winnipeg. It was stated that the flooding was due to the fact that a greater body of water was brought into Lake Manitoba than its outlet was capable of carrying off, and that the Water Hen itself discharged, at the time of freshets, 25 per cent. more water into the lake than Fairford River carried off.

The Water Hen is the outlet of Lake Winnipegosis, a lake that has a larger area than that of Lake Manitoba, and stands 19 feet above it.

In its present state, obstructed as it is by islands, boulders and shoals, the Water Hen is only capable of passing a certain quantity of water per unit of time into Lake Manitoba, and it follows that if its channel be deepened and widened by the removal of the obstructions complained of, a larger volume of water per unit of time will be passed into Lake Manitoba, resulting in the flooding of a further quantity of land.

This opinion is deduced from what I have gathered respecting the Water Hen and might possibly not be borne out after an examination had been made, and whilst the improvement asked for would be of the greatest possible advantage to those operating in the timber limits surrounding Lake Winnipegosis, I am of the opinion that it is extremely desirable an examination should first be made to determine the nature and extent of the obstructions in the river, and also whether by their removal a further quantity of water would, during periods of freshets, be passed into Lake Manitoba, and if so, whether means might not be adopted whereby the passage of timber could be effected without in any way interfering with the regimen of the river, and I beg leave to recommend that the sum of \$5,000 be placed in the supplementary Estimates 1882-83 to cover the cost of such examination and the prosecution of works to give immediate relief.

I have the honour to be, Sir,  
Your obedient servant.

HENRY F. PERLEY,  
Chief Engineer.

F. H. ENNIS, Esq.,  
Secretary, Dept. Public Works.

(Ref. No. 21,737.)

CHIEF ENGINEERS' OFFICE,  
OTTAWA, 28th February, 1882.

SIR,—I have already, under date 27th instant, submitted a letter relative to an application for improving the Water Hen River, Manitoba, for the passage of "logs and timber," but the application of Messrs. Whitehead and others (No. 21,632) is that the improvement to be effected may be such that the river shall be made navigable for "timber barges and their steam tugs."

In the letter referred to, I stated that the flooding of the country surrounding Lake Manitoba was due to the fact that its outlet was not of sufficient capacity to carry off the water brought into the lake by the various streams which fall into it, and that the Water Hen, the outlet of Lake Winnipegosis, did alone during the season of freshets pour into Lake Manitoba 25 per cent. more water than its outlet the Fairford River is able to carry off, and hence the flooding of the lands bordering the lake.

Lake Winnipegosis has an area of 1,936 square miles, and stands at a height of 18 feet 9 inches over Lake Manitoba, and the Water Hen flows from near its southern extremity by a circuitous course into the northern end, or head of Lake Manitoba, a distance of thirty miles.

The Water Hen was surveyed in 1873 by Mr. H. B. Smith, C.E., and is described as follows in the Report of Progress, Canadian Pacific Railway, 1874, page 260:

"After traversing a long reach of Lake Winnipegosis the Water Hen is entered, flowing in a north-easterly direction between low marshy lands, with a current of three miles an hour over a muddy bottom; its average width is about 500 to 600 feet, and a depth of 5 to 6 feet, the difference of level on this section known as the "North Branch is about 6 feet.

"Water Hen Lake is now reached, a very shallow sheet of water, filled with boulders lying on a stiff clay bottom, and so close together that no channel can be found; the average depth in July, 1872, was only 3 feet, but Hudson Bay Company's servants state that in 1871 the depth did not exceed 2 feet, and that they have known it to be as low as 1 foot 6 inches.

"Leaving Water Hen Lake the River flows at an average rate of three to four miles an hour in a southerly direction to the "Forks." The depth varies from  $3\frac{1}{2}$  to 17 feet, and the channel is in many places obstructed by large boulders, so as to interfere seriously with navigation.

"The average width of this portion of the river is about 500 feet, the bottom is stony as far down as the Forks, where it becomes muddy."

If the above description is applicable to the present state and condition of this river, it may be assumed that the obstructions complained of exist principally in its lower reach, and the Water Hen Lake portion of its course, which cover two-thirds, or twenty miles of its length.

In my letter of the 27th inst., I stated that by the removal of obstructions in this river and deepening its channel, a much larger volume of water would be brought per unit of time into Lake Manitoba, and thus contribute to the volume which could not pass off by the Fairford, but would remain to flood the surrounding country.

For the purpose of timber barges and attendant steam tugs a depth of at least 6 feet will be required, and I am not prepared now to say how it can be obtained, and if obtained, how to be maintained, and I can only repeat here what I have expressed in my letter of the 27th inst. that it is desirable a thorough examination should be made of this river, before deciding what course shall be pursued to obtain the improvements asked for.

It may be noticed that Messrs. Whitehead and others state that one of the conditions of sale of the limits they possess is that they shall erect saw mills of a defined capacity. This condition they claim they are unable to comply with, because (1st) the obstacles complained of prevent them placing the mill machinery on the ground, and (2nd) that if the mills be made ready for use, they would be useless, as the lumber cut could not be brought out to Lake Manitoba, and thence to a market.

I have ascertained that the condition mentioned is binding upon the purchasers of limits around Lake Winnipegosis, and the penalties for its non-fulfilment must be exacted, unless, in view of the circumstances stated by Mr. Whitehead, *et al*, and referred to herein, an Order in Council is passed to give relief until such time as improvements have been effected in the Water Hen as desired and found to be necessary.

I have the honour to be, Sir,  
Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Public Works Department.

(Ref. No., 34,729.)

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 25th May, 1883.

SIR,—With reference to the Water Hen River, Manitoba, I have to submit the following statement by Mr. Thos. Guerin, C.E., who made an examination of that river during the summer of 1882:—

"Having finished the examination of Mossy Portage, I returned to the party at Water Hen River.

"This river is divided all along its course by islands. It, therefore, has several channels, but the survey was confined to the main or principal channel. I ascertained that in the vicinity of where it was gauged in the year 1831, its surface had since fallen about two feet below the level it had on that year.

"On inquiring about the rise and fall of Water Hen Lake, I was informed by a very intelligent Indian who belonged to our party, that the lake then was about 3 feet higher than it used to be some years ago. He stated that the lake last year (1881) was from 5 to 6 feet higher than it used to have been formerly, but that it has fallen this summer (1882) about 2 or 3 feet. That was the information the Indian supplied, and it agreed so nearly with some of the facts I found to exist that I attach much importance to his statements.

"However, Mr. Hartman, who has been living in the vicinity of Water Hen Lake as a trader, for several years, stated that it was at that present time (August, 1882) as low as it was at any time within his memory.

"In recommending a plan for the improvement of the navigation of this river, it is important to know which of these two men has given correct information. If the Indian is correct, then as you will see by the soundings on the plan, it would cost an immense amount of money to dredge a channel so as to afford navigation for vessels drawing 6 feet of water when the lake and river shall have fallen to their normal conditions; moreover, it would be dangerous to do so, for the reason that the result would be to increase the capacity of the river, and thus increase the power of Lake Manitoba to flood the surrounding country to a greater degree than it has heretofore done.

"If the information of Mr. Hartman is correct, then the expense to obtain the same result will be comparatively trifling.

"In the former case, the bottom of the river, consisting as it does for a long distance, of boulders, would have to be dredged to a depth of 3 to 4 feet, for a distance of about thirty miles; but in the latter case no dredging will be required, but the removal of boulders which are scattered through the main channel.

"No boulders were encountered between Lake Winnipegosis and Water Hen Lake. The first present themselves about 15 miles above the mouth of the river.

"The soundings show that the channel is at present navigable throughout its whole length for vessels drawing 4 feet water, but this depth is obtained by a zig-

zag course which it would be difficult for persons not thoroughly acquainted with it to follow.

"To obtain a straight channel of 6 feet deep and 150 feet wide, it will be necessary, throughout a distance of twelve miles, to remove the boulders in various places. The cost of this work I estimate to be \$10,000.00."

The question whether the Water Hen should be deepened or rendered navigable for deep draught vessels, is one of great importance. This river is the outlet of Lake Winnipegosis, and is 30 miles in length, and has a fall of 19 feet to Lake Manitoba. Lake Winnipegosis lies to the northward and westward of Lake Manitoba, has an area of 1936 square miles and receives the drainage of a large extent of country to the westward. Lake Manitoba has an area of 1900 square miles, and flows through the "Fairford River" into St. Martin Lake, and thence to Lake Winnipeg, the total fall amounting to 42 feet.

In my Report of the 15th February, 1882, I referred to the flooding of Lake Manitoba, and stated that it was due to the fact that the Fairford was not large enough to carry off the water brought into the Lake, that its mouth was closed by rocks, and the remedy consisted in the construction of lateral channels &c.

As Lake Winnipegosis is larger than Lake Manitoba, as it drains a larger extent of country, and is fed by rivers of considerable size, and the whole of the water collected *must* flow into Lake Manitoba and thence into Lake Winnipeg, and as with the Water Hen in its present state, Lake Manitoba is flooded, it follows that if the Water Hen be improved either by deepening or the removal of the obstructions which exist, to admit the passage of vessels of a greater draught then can now pass through it, it follows that its off-take capacity will be increased, a greater volume of water will be poured into Lake Manitoba and a greater flooding of lands surrounding that lake will take place. For this reason, or until the works proposed for enlarging the Fairford are under way, I cannot recommend any deepening over the whole length of the Water Hen.

I have the honor to be, Sir,

Your obedient servant,

HENRY F. PERLEY.

*Chief Engineer.*

F. H. ENNIS, Esq.,

Secretary, Public Works Department,

APPENDIX No. 7.

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# STATEMENT

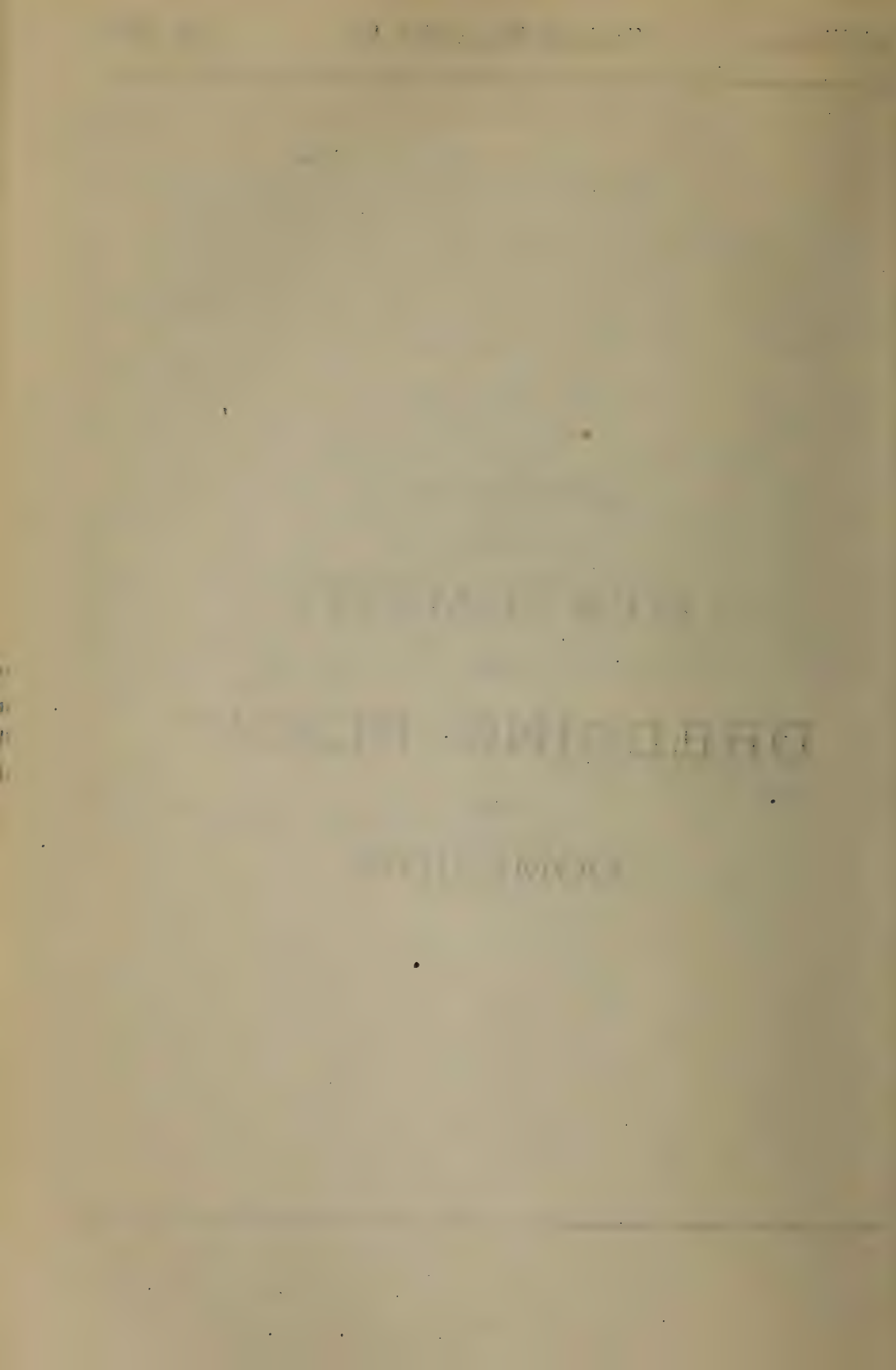
OF THE

# DREDGING PLANT

OF THE

# DOMINION.

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STATEMENT showing the Number of Dredges, Dredge Tugs, Scows, and Stone-Lifters, belonging to the Department, with Number of Crew, average Wages per month for the Year 1882, cost of Construction, &c.

Province where used.	Name of Vessel.	Description of Vessel.	Number of Crews.	Average Wages per Month.	Cost of Construction.	Remarks.
Nova Scotia and New Brunswick	St. Lawrence.....	Steam hopper dredge.....	15	\$ 495 97	\$ 116,389 48	This is an iron hull elevator dredge, built in Glasgow in 1874-76.
	Canada .....	do .....	11	370 85	42,778 44	This is an iron hull elevator dredge, built in Glasgow in 1871-73.
	New Dominion.....	Dipper dredge and 8 scows....	11	238 76	30,826 51	A wooden hull spoon dredge, built in 1871-72
	Cape Breton.....	do .....	13	287 66	19,744 38	do do 1874-75
	George McKenzie....	do .....	11	271 47	15,000 00	do do purchased in 1879
	Prince Edward Island....	do .....	11	322 21	23,582 07	Transferred from Local Government, P.E.I., at Confederation, on payment of \$22,000.
Quebec	Queen of Canada.....	do .....	8	233 49	15,000 00	A wooden hull spoon dredge, purchased prior to Confederation.
	Scows.....	2 scows.....	.....	198 02	.....	These scows being flat decked require from 8 to 12 additional men.
	Nipissing.....	Dipper dredge and 2 scows....	8	260 60	15,501 57	Purchased July 1880. Wooden built dipper dredge.
	Dennis.....	Steam tug.....	3	142 28	2,000 00	Purchased at same time as "Nipissing"
	Baillarge .....	Stone lifter and scow .....	9	300 00	1,600 00	Built in 1881-82 for working in swift currents. Consists of two flat-bottomed barges 42 ft. by 8 ft. by 3 ft., pointed at both ends, and placed 7 feet apart, joined at top by a timber platform, 23 ft. by 26 ft., Catamaran style, carrying a frame 14 ft. high, and provided with hoisting machinery, grabs, &c.
	Challenge .....	Dipper dredge and 2 scows....	6	219 03	31,211 32	Re-built in 1873-74. Wooden hull spoon dredge.
Ontario	Trudeau.....	Steam tug.....	3	117 43	6,847 05	Purchased in 1876.
	Dredger .....	Elevator dredge and 6 scows.	10	566 54	60,000 00	Built by Local Government in 1865, and transferred to Dominion at Confederation
	Georgie.....	Steam tug.....	.....	.....	6,250 00	Transferred in 1875.



APPENDIX No. 8.

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QUEBEC HARBOUR IMPROVEMENTS.

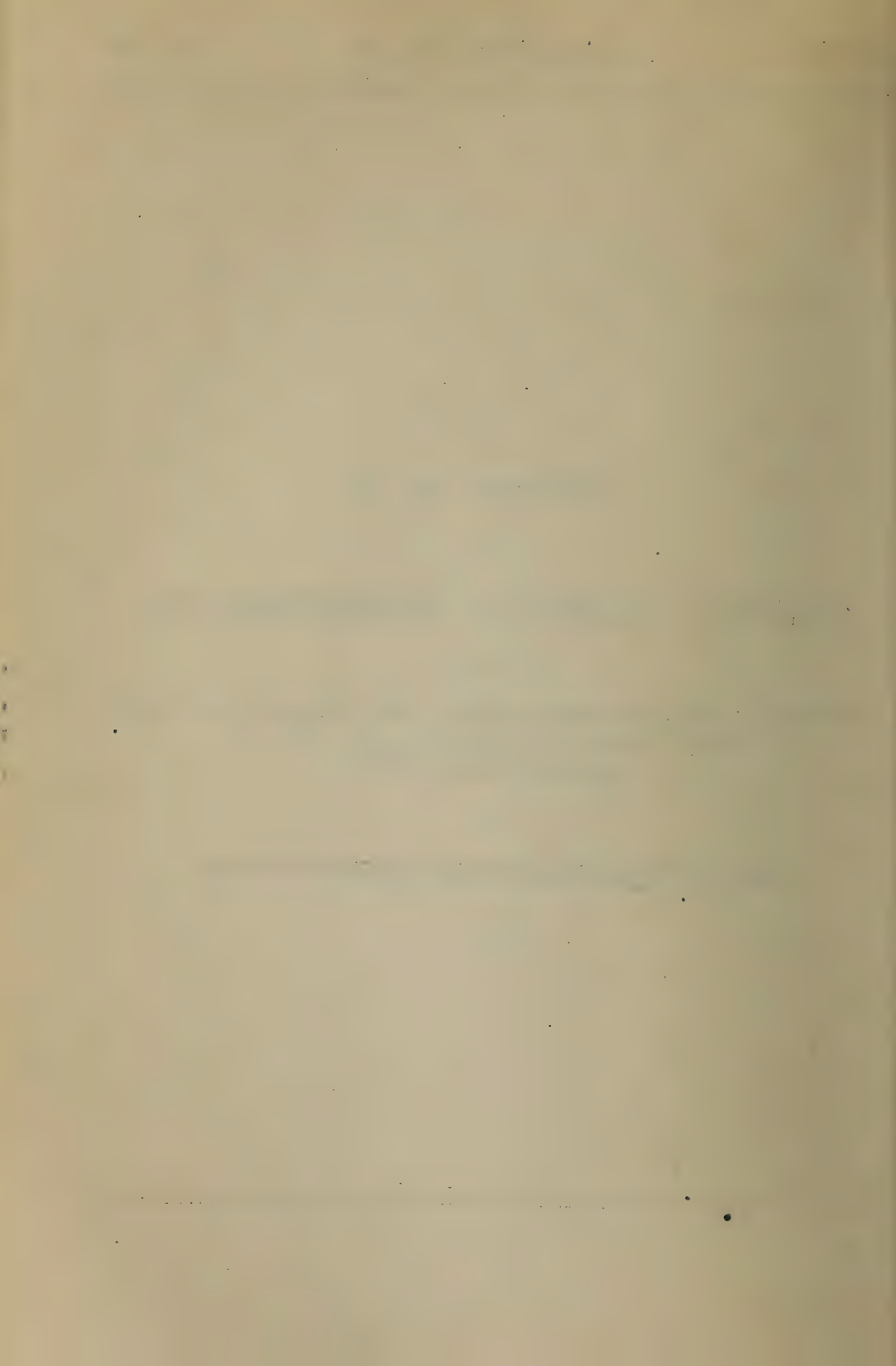
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REPORTS ON THE PRINCESS LOUISE EMBANKMENT AND DOCK  
WORKS, RIVER ST. CHARLES; AND ON THE  
GRAVING DOCK, LEVIS.

BY

THE QUEBEC HARBOUR COMMISSIONERS.

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APPENDIX No. 8

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QUEBEC HARBOUR IMPROVEMENTS—RIVER St. CHARLES; AND  
GRAVING DOCK AT LEVIS.

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Ref. No. 39,166. HARBOUR COMMISSIONERS' OFFICE,  
QUEBEC, 9th October, 1883.

SIR,—I have the honour to transmit you herewith the reports on the works of the Harbour Improvements and of the Graving Dock, for the fiscal year ended the 30th June last, asked for in your letter of the 28th July ultimo.

I have the honour to be, Sir,  
Your obedient servant,

A. H. VERRET,  
*Secretary-Treasurer.*

F. H. ENNIS, Esq.,  
Secretary, Public Works Department,  
Ottawa.

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QUEBEC HARBOUR IMPROVEMENT WORKS.

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PROGRESS REPORT ON THE PRINCESS LOUISE EMBANKMENT WORKS,  
RIVER St. CHARLES.

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HARBOUR COMMISSIONERS' OFFICE,  
RESIDENT ENGINEER'S DEPARTMENT,  
QUEBEC, 6th October, 1883.

SIR,—I have the honour to report, for the information of the Hon. the Minister of Public Works, on the progress made with the above works, for the fiscal year ended 30th June, 1883.

After closing the contracts for the first section of these works and calling fresh tenders for the dredging for the Cross Wall, in line with the production of Dalhousie street, and the closing of the Louise Embankment, by piling at the end of Dinning's wharf, near the Gas Works, at the end of Ramsay street, nothing beyond preparing and signing the contracts with Messrs. Larkin, Connolly & Co., had been done to the end of the fiscal year, except the preparation of materials and the construction of extensive dredging and other plant, none of which came under the control or responsible supervision of this Department, nor were any advances made.

The contractors, however, pushed vigorously forward these preliminary works.

I have the honour to be, Sir,

Your most obedient servant,  
WOODFORD PILKINGTON, M.I.C.E.,  
*Resident Engineer.*

A. H. VERRET, Esq.,  
Secretary-Treasurer.

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PROGRESS REPORT ON THE GRAVING DOCK WORKS AT St. JOSEPH  
DE LEVIS.

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HARBOUR COMMISSIONERS' OFFICE,  
RESIDENT ENGINEER'S DEPARTMENT,  
QUEBEC, 6th October, 1883.

SIR,—I have the honour to report on the progress made with the Graving Dock works in course of construction at Point Lévis, for the fiscal year ended 30th June, 1883, for the information of the Hon. the Minister of Public Works.

The total expenditure on these works to that date, including the builder's contract, pumping machinery, caisson cofferdam extension and engineering expenses, together with miscellaneous items under the head of sundries, amounts to \$419,096.79, as follows:—

Larkin & Co.....	\$305,917 35
Wighams Richardson.....	29,331 45
Carrier, Laine & Co.....	19,076 00
Engineering and sundries.....	64,771 99
<b>Total.....</b>	<b>\$419,096 79</b>

Owing to the time necessarily taken with the completion of the concrete dam and bottom forming a structural addition to the outworks, progress with general works only extended to the back of the intermediate dam, for a length of 300 feet, out of a total length of 500 feet of the main work or dock proper, together with the entrance works connected with the previously constructed wing walls.

The works remaining over for completion, include the entrance invert with caisson recess, the engine house, pumping wells, and discharging culverts, together with the fixing of the machinery, boilers, &c., the whole of the materials for which are either already on the ground or are in the engine works of Messrs. Carrier, Laine & Co.

The travelling caisson has also to be put together and tested, and the meeting faces of the entrance glossed, to fit the corresponding meeting faces of the caisson, a most critical and important operation, and one on which the success of the entire works depend.

I have the honour to be, Sir,

Your most obedient servant,

WOODFORD PILKINGTON, M.I.C.E.,  
*Resident Engineer.*

A. H. VERRET, Esq.,  
Secretary Treasurer.

APPENDIX No. 9.

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**REPORT ON DEEPENING THE CHANNEL**

BETWEEN

MONTREAL AND QUEBEC.

BY

THE MONTREAL HARBOUR COMMISSIONERS.

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## APPENDIX No. 9.

REPORT OF THE MONTREAL HARBOUR COMMISSIONERS ON THE  
DEEPENING OF THE CHANNEL BETWEEN  
MONTREAL AND QUEBEC.

Ref. No. 40,254.

HARBOUR COMMISSIONERS OF MONTREAL,  
SECRETARY'S OFFICE,  
MONTREAL, 7th November, 1883.

SIR,—I have the honour, by direction of the Harbour Commissioners, to forward herewith, for the information of the Honourable the Minister of Public Works, a copy of the Chief Engineer's Report on the dredging operations for deepening the ship channel between Montreal and Quebec, for the fiscal year ended the 30th June last.

I have the honour to be, Sir,  
Your obedient servant,

H. D. WHITNEY,  
*Secretary.*

F. H. ENNIS, Esq.,  
Secretary, Department Public Works.

HARBOUR COMMISSIONERS OF MONTREAL,  
CHIEF ENGINEER'S OFFICE,  
MONTREAL, 7th November, 1883.

SIR,—In compliance with the request of the Secretary of Public Works, I beg to submit the following report upon the work of deepening the Ship Channel of the St. Lawrence between Montreal and Quebec during the Government fiscal year ended 30th June, 1883.

The object kept in view in carrying on the summer's work in 1882 was to redeem the promise of some years ago, that the 25 feet channel should in that year be open for navigation.

Special efforts were also made that this should be done as early in the summer as possible, so that its benefits to navigation might be felt during the low water of autumn. For this purpose two of the largest dredges and a stone litter, with the tugs attending them, were worked night and day, and the Montreal Harbour dredging fleet was also, as far as practicable, made to assist the ordinary Ship Channel plant.

The object was so far attained as to allow of the formal opening of the deepened channel, by a trip through it by the Harbour Commissioners and a number of representative gentlemen, on board the steamship *Peruvian* on the 3rd October last. After the depth had been obtained most of the dredging plant was kept employed until nearly the close of navigation in 1882, in widening, straightening and otherwise further improving the channel at such points as it seemed most desirable to do so. From the close of navigation in 1882 to the 30th June, 1883, nothing additional was done. The channel at the end of the fiscal year, may be briefly described as having

been deepened and tested to a clear depth of 25 feet at low water of 11 feet on the Flats of Lake St. Peter, at all places above Cap-la-Roche, but at that point, and at Cap Charles adjoining, advantage must be taken of a good average tide to pass with the full depth available elsewhere.

The breadth of the dredged channel is 325 feet in the straight parts in Lake St. Peter between the White Buoy and No. 1 Light Vessel; 300 feet minimum width in the straight parts elsewhere, with increased width at bends and other places where navigation requires. The places at which the largest quantities of work have been done during the year are:—Cap à-la-Roche, Lake St. Peter, Contrecoeur Channel and Pointe aux Trembles (*en haut*).

The following are the chief details of the year's work. The cost of the dredging at each place is generally taken as that of the previous summer, for the reason that the expenditure cannot well be sub-divided to the end of the Government fiscal year which occurs in the middle of the working season. The costs given include all charges and outlay of every kind, except for interest and depreciation of plant.

*Cap Charles.*—The dredging of former years was gone over where necessary and any loose shale or boulders which had escaped the dredge buckets were removed so as to afford a clear depth of 21 feet 6 inches at low water. The breadth of the new channel through the shale is 300 feet, except at a point near the lower end where it is only about 270 feet. The quantity dredged is 2,145 cubic yards of shale and boulders, costing about \$1.64 per yard.

*Pouillier Rayer.*—A part of the south side of the shoal was cut away to afford more room for vessels entering or leaving the lower end of the Cap-la-Roche new channel. Quantity dredged and removed by stone lifter, 1,601 cubic yards clay and boulders, costing \$1.32 per cubic yard.

*Cap-à-la-Roche.*—The latter part of the summer of 1882 was spent in passing the dredge over the work previously done, so as to clean off loose shale and boulders, after which about three-fourths of the channel was tested to a clear depth of 21½ feet, and the remainder to 20 feet 9 inches depth at lowest water. The breadth of channel cut through the rock is 300 feet. At the lower end the boulders are cleared away on the south side, so as to give a much wider entrance. Total shale rock and boulders lifted, 26,952 cubic yards, costing 96 cents per yard.

*Champlain Point (Pointe Citrouille).*—The artificial channel at this point is dredged through a bar of sand about 1,150 feet in width on the line of the 25 feet depth, and running diagonally across from the great Gentilly Shoal to the mainland of the north shore. The bar is composed of very coarse loose sand, which is found to move with the current; and on examining the dredged channel last spring, it was found to be partially filled in. Quantity dredged, 9,210 cubic yards, costing \$2,766, or an average of 30 cents per yard.

*Lake St. Peter.*—At the beginning of the fiscal year, dredging was then in progress, and there then remained to finish the channel through the lake, only about a mile of partial cutting at No. 3 Lightship, and work was continued upon this, and it was completed early in the autumn. The line of the finished channel is the same as that of the 20 feet channel, with the exception of the bend at No. 3 Lightship, and the line of the Nicolet Traverse, both of which were moved considerably to the north in order to economize work and to secure more room for vessels which might be carried out of their course by cross currents. In the straight line above No. 1 Lightship; and below the White Buoy, the breadth is 300 feet; in other straight parts above No. 3 Lightship, it is 325 feet; in the Nicolet Traverse it is 450 feet, and at the bends connecting the straight lines it is generally 450 feet. In making the last cut for the twenty-five feet depth, the bottom of the long pools opposite Yamachiche and No. 1 Lightship was reached, and their great value in reducing the quantity of dredging, and in furnishing safe anchorage and turning places for the largest vessels, will therefore not be available in future deepening.

The quantity dredged in the fiscal year was 155,055 cubic yards costing about 7½ cents per yard.

*Ile de Grace.*—Toward the close of the summer of 1882 an unfinished portion of the north side of the main cut and a point of the shoal on the north side were removed, and the channel finished. The breadth in the main cut is 300 feet. The material, as before, is coarse loose sand, about  $2\frac{1}{2}$  feet in thickness, and beneath that stiff blue clay. Quantity dredged, 6,945 cubic yards, costing about 21 cents per yard.

*Contrecoeur Channel.*—The dredging has consisted largely of the removal of the tops of small isolated shoals and lumps found on testing, and in clearing up some places previously dredged. The breadth of the finished channel as it stands is 300 feet in the straight parts, and 450 feet at the bend in the middle of the main cut. The bend at the junction of the main cut with the wide water at the south side of the river is made by a curve of half a mile radius, but the currents are such that this is felt to be too quick a turn for large vessels, and it is therefore much in need of being eased off to about  $1\frac{1}{4}$  miles radius. Quantity dredged last year, 42,700 cubic yards, costing  $17\frac{1}{2}$  cents per yard.

*Plum Island.*—At the depth of 25 feet the shoal water along the Island was connected with that on the south shore of the river by a series of detached lumps of stiff clay covered with boulders, and these were removed so as to form a clear channel of 400 feet in breadth. Quantity removed, 3,880 cubic yards, costing  $25\frac{5}{10}$  cents per yard.

*Pointe Marie.*—A few small lumps and points of shoals were cut away to straighten and widen the channel, and part of the former dredging was run over again. Quantity dredged 2,790 cubic yards, costing  $35\frac{1}{4}$  cents per yard.

*Varenes.*—At the line of the lower lights of Ile Ste. Therèse, a few places left from the former dredging were removed, the upper curve was trimmed off and some points found in testing were also removed. Quantity dredged, 3,490 cubic yards, costing  $33\frac{1}{10}$  cents per yard.

*Pointe-aux-Trembles to Longue Pointe.*—The dredged channel [was extended up to deep water near Longue Pointe; the bend at the head of Ile Ste. Therèse and the line of the Pointe-aux-Trembles lights were finished, and the piece of rock dredging opposite the village was taken out and the channel generally was tested and completed. The minimum breadth in the straight dredging is 300 feet with an enlargement at the bend to 450 feet. Quantity dredged 78,780 cubic yards, clay and boulders costing an average of  $18\frac{8}{10}$  cents per yard; and 7,574 cubic yards rock and overlying gravel and boulders, costing  $65\frac{3}{10}$  cents per yard.

*Hochelaga.*—Opposite the lower part of Hochelaga, or about a mile below the Hudson Cotton Mill, a neck of shoal, consisting entirely of large and small boulders, connects the shallow water of the north and south shores of the river, and through this a channel of 450 feet wide was made with dredges and stone lifters. Quantity of stone dredged and grappled, 5,025 cubic yards, costing \$1.31 $\frac{1}{2}$  per yard.

*Montreal.*—The greater part of the main channel through the harbour was tested and run over by dredges, and cleared of boulders and small lumps. Quantity dredged 75,917 cubic yards, costing  $38\frac{9}{10}$  cents per yard. The average quantity of dredging done at all points during Government fiscal year ended 30th June, was 432,390 cubic yards. The expenditure on working account, which is made up only at the end of each Harbour Commissioners' year at 31st December, was for the year ended 31st December, 1882, \$172,204, with an aggregate of 899,235 cubic yards dredged, as against \$167,301 for 1881 with 1,453,788 cubic yards dredged.

It will thus be seen that the cost of working the dredging plant for the past year has been increased over that of recent years by further advances in the cost of labour, fuel and stores and by night work on two of the dredges and their tugs.

The quantity of work done in cubic yards is, on the other hand, much reduced from the fact that the dredging was for the most part merely cutting off tops of small isolated shoals, which required that the dredges should pass over a larger area of ground for sometimes only a few stones and scow loads of earth.

The plant used in the work consisted of two large and two ordinary elevator dredges for working in earth; three elevator dredges for working in rock; three

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spoon dredges part of the time, two steam stone lifters; seven screw tugs; one paddle tug in 1882; five barges used as coal tenders and smith's shop; eighteen hopper bottom scows, and three to eight flat scows.

Yours respectfully,

JOHN KENNEDY,

*Chief Engineer.*

H. D. WHITNEY, Esq.,  
Secretary.

APPENDIX No. 10.

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MONTREAL HARBOUR.

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REPORT

OF THE

CHIEF ENGINEER

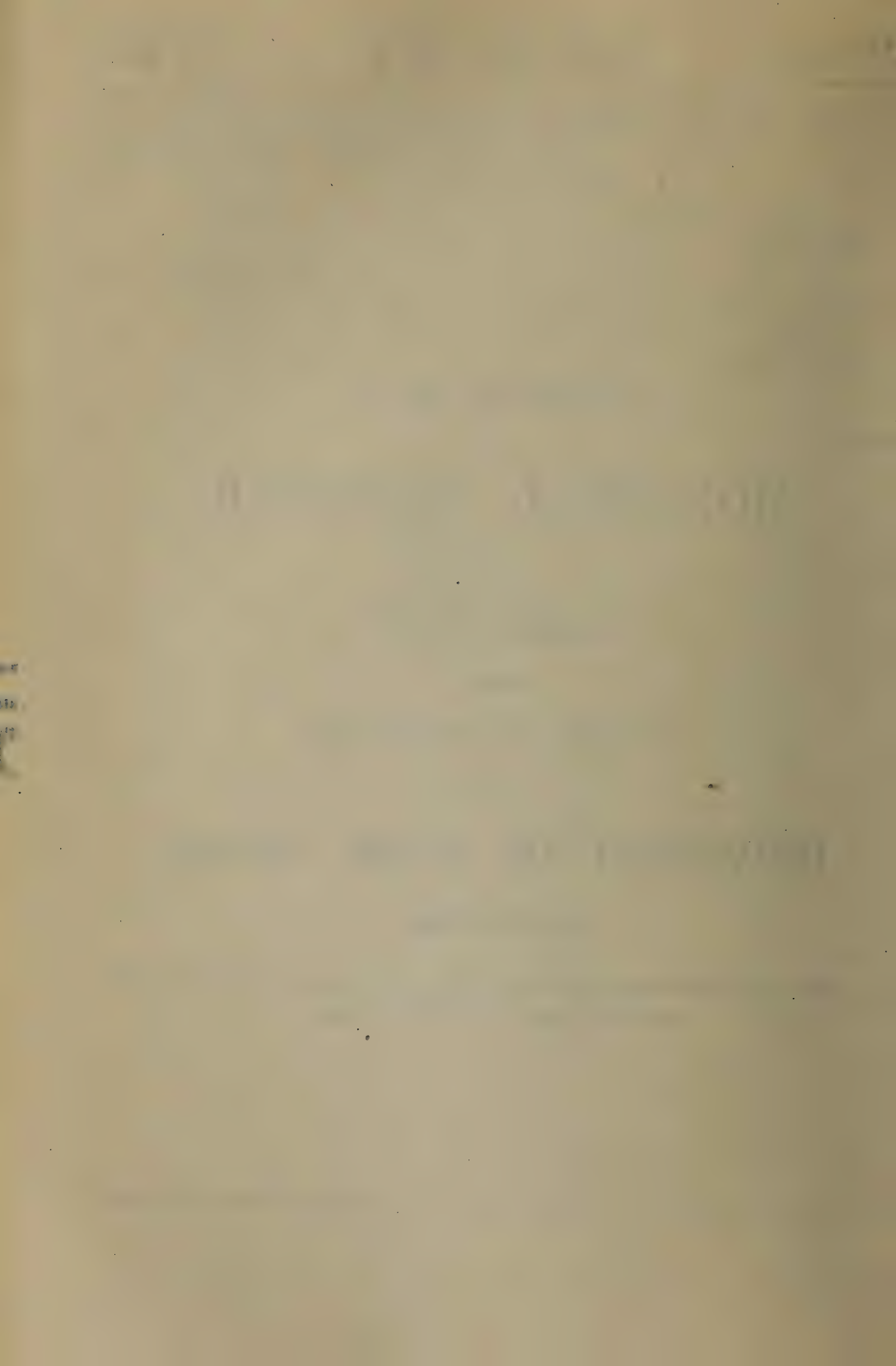
OF THE

DEPARTMENT OF PUBLIC WORKS,

CANADA,

ON THE ST. LAWRENCE BRIDGE AND MANUFACTURING COMPANY'S  
SCHEME, FOR PROPOSED WORKS.

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## APPENDIX No. 1C.

## REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT OF PUBLIC WORKS, CANADA, ON THE ST. LAWRENCE BRIDGE AND MANUFACTURING COMPANY'S SCHEME, FOR PROPOSED WORKS IN MONTREAL HARBOUR.

Ref. No. 33,019.

DEPARTMENT OF PUBLIC WORKS,  
CHIEF ENGINEER'S OFFICE,  
OTTAWA, 19th March, 1883.

SIR,—I have the honour to submit, for the information of the Honourable the Minister, the following with reference to an application made to Parliament by the promoters of the Saint Lawrence Bridge and Manufacturing Company, commonly called the "Shearer Scheme," for powers to construct a dam or embankment across the St. Lawrence from Point St. Charles, at or near the abutment of the Victoria Bridge, to the head of St. Helen's Island, opposite Montreal; and a bridge across the channel between said Island and the southern or St. Lambert's shore, the whole with the view of the creation of power for manufacturing purposes, and affording a means of transit for highway and railway traffic between the north and south sides of the river.

The embankment proposed is to contain three series (of ten each) of controlling sluices capable (so stated) of passing into the harbour 486,000,000 of cubic feet of water per hour. The control of these sluices, it is proposed by the promoters, shall be placed in the Board of Harbour Commissioners, and Mr. T. F. Bateman, the Engineer to the Company (from whose report of the 18th January of 1882 I quote) states that they should be closed during the winter season, and opened only when required during the season of navigation, &c.

It is further proposed that the embankment shall contain thirty-five sluices for manufacturing purposes, capable of discharging into the harbour about 354,000,000 cubic feet per hour, and these sluices are also to be generally superintended and controlled by the Harbour Commissioners.

The total flow of water into the harbour through these systems of sluices will amount to 850,000,000 of cubic feet per hour, or 236,111 cubic feet per second.

As this embankment will obstruct the present course of the river past Montreal, it is proposed, for the purpose of increasing the discharging power of the channel between St. Helen's Island and the St. Lambert shore, hereinafter called the South Channel,—to remove entirely Moffat's Island and its connexion with the shore, also all existing islets, rocky patches, and obstructions, and to widen and straighten it at the points colored *red* on the plan herewith, which is a reduction of the plan submitted by the promoters of the Company. It is further proposed to widen the passage between St. Helen's Island and Ile Ronde, to permit the passage of 85,000,000 cubic feet per hour into the harbour, thus increasing its discharge to 939,000,000 cubic feet per hour—exclusive of the discharge from the Lachine Canal.

This discharge of 935,000,000 cubic feet per hour is equal to 259,722 cubic feet per second, and if to it be added the discharge per second from the Lachine Canal, viz., 2,288 cubic feet, the total discharge into the Harbour of Montreal will be, according to Mr. Bateman, 262,010 cubic feet per second.

As the construction of the proposed embankment will entirely bar the passage of steamers and craft through the present and only channel, it is proposed to excavate a channel along the southern side of St. Helen's Island, 300 feet in width, to an uniform depth of 10 feet below the present bed of the river, so that when the level of the harbour has to be maintained by keeping the whole of the sluices running full bore, there may be a sufficient depth through the South Channel for all purposes of navigation.

This project bears upon four interests, each of much importance, and having, in a degree, a connexion with each other.

1. The navigation of the St. Lawrence above Montreal.
2. Its effects upon the Harbour of Montreal.
3. Its effects upon the country on either side of the St. Lawrence to the foot of the Lachine Rapids.
4. Its effects upon the City of Montreal.

With respect to the navigation of the St. Lawrence above Montreal, it is claimed that, by clearing the South Channel of all obstructions, and excavating a deep channel as proposed, the boats now plying to Laprairie or descending the Lachine Rapids will not in any way be interfered with.

The only objection to this channel for vessels is that the distance between Montreal and Laprairie would be increased about two and a-half or three miles on the round trip, thus making a little extra running for the steamers engaged in the ferry service, which is not a matter of vital importance.

The bridge proposed to be constructed across the South Channel should not be less in height above summer water level than the centre span of the Victoria Bridge.

The effects this embankment will have upon the future of the harbour of Montreal demand the most serious consideration.

This harbour is now capable of receiving the largest class of sea-going vessels, and has become perhaps the largest port of entry in the Dominion. All these results are due to the expenditure of a large amount of money, and the energy and determination of the business men of Montreal; and it becomes a question whether these business men, through their representatives, the Board of Harbour Commissioners, have not a vested right in the harbour, a right which should not be disturbed, or if interfered with, then such interference should be with the view of doing as little harm as possible.

Now the promoters of the "Shearer scheme" state that they will not interfere with the harbour, or the rights and privileges enjoyed by the Harbour Commissioners; that the works they propose will be of advantage to the harbour; that the level of water will not be lowered, and can be controlled as regards height by the sluices before referred to; that the *detritus* annually brought into the harbour during the winter and times of spring freshets will be cut off; and that after the harbour is once dredged to its intended depth, it will not require any further attention, except to remove the sediment deposited from local causes; that the St. Mary's Current will be reduced in velocity from eight and a-half miles to five miles per hour; and that the rapid current between Ile Verte and Sous-le-Mont will be extinguished.

Attached to this communication is a report prepared by Mr. Thomas Guerin, C.E., of this Department, whose thorough knowledge of the science of hydraulics and long and practical experience render him in every way capable of investigating the question of interfering with the discharge of so great a river as the St. Lawrence, and of determining scientifically the probable results which may obtain from such interference as is proposed by the promoters of the "Shearer Scheme."

Mr. Guerin has for many months made a study of the river opposite Montreal, and the results of his investigations are given at full length; and he deals entirely with facts as they were found to exist, and not with opinions or suppositions, his attention being exclusively given to the elucidation of two questions:—

1. How the proposed scheme would affect the depth of water in the harbour :  
and
2. How would it affect the land on either side of the river.

With respect to the first question Mr. Guerin, assuming a certain date, has determined the flow of the river on that date, and shows that if the dam were then in existence, and all the sluices closed, the whole of the water in the St. Lawrence would be forced through the South Channel, which would rise nearly 9 ft. in height, whilst the water in the harbour would — even allowing for any quantity that might back in through the Ile Ronde Channel — be reduced 3 feet below its usual level.

It may be pertinent here to state that it is considered to be low water in the harbour when there is a depth of 17 feet of water on the sill of Lock No. 1, Lachine Canal, and as the level of this sill is 81 feet above datum, it follows that the elevation of low water is 98 feet above datum.

To restore this loss of 3 feet or to raise the elevation from 95 to 98 feet, it becomes necessary to open the sluices, and the amount stated by Mr. Bateman, viz., 850,000,000 cubic feet per hour, or 236,111 cubic feet per second is taken from the flow through the South Channel, which at the date assumed was passing 287,129 cubic feet per second, and stood 9 feet above the legitimate level of the harbor, or 12 feet above its reduced level; and this amount of 12 feet represents the head on the sluices at the time they are opened to supply the wants of the harbour. As before stated, the South Channel was passing 287,129 cubic feet per second, and at the moment the whole of the sluices are open they will pass 236,111 cubic feet per second, or a total of 523,240 cubic feet per second will be abstracted from the river, which will have the effect of quickly diminishing the depth in the South Channel, and this diminution of head will at once diminish the flow through the sluices as well, and both will proceed until an equality is obtained, or until the discharge of the St. Lawrence is equal to the discharge through the South Channel, *plus* the discharge into the harbour through the sluices, or, when both are equal to a flow of 287,129 cubic feet per second.

Mr. Bateman states that he expects a quantity equal to 85,000,000 of cubic feet per hour to pass into the harbour through the Ile Ronde channel to assist in maintaining it at its normal level. Mr. Guerin does not permit this to enter into his calculations, because the velocity in the South Channel, its elevation above that of St. Mary's Current, the dimensions of the channel or passage between Ile Ronde and St. Helen's Island, the angle the current through it makes with St. Mary's Current, and the velocity of the latter, are all functions in determining the quantity which would have a tendency to pass into the harbour.

Eliminating this quantity entirely, Mr. Guerin states that after the works have been completed, and all the sluices are running full, the level of the harbour of Montreal will be permanently reduced 0.80 feet, or  $9\frac{1}{2}$  inches; and he goes further and asserts that to maintain the harbour at this reduced level, the sluices once open cannot be closed again without diminishing the water in the harbour. The inference therefore is that the sluices, both for controlling and milling purposes, must remain fully open at all times during the season of navigation, and also that the permanence of this reduced elevation is entirely dependent upon the permanence and stability of the sluices themselves, and their freedom from damage, and liability to be choked or stopped up by *débris*, or even an odd boat or barge now and then, for it must not be forgotten that the velocity of the water passing through these sluices will range from ten to thirteen miles per hour; and the indraught will be sufficient to swamp anything unfortunate enough to be caught on the upper side of the dam; and for this reason it will be impossible to leave the sluices open during the winter season, as from their small dimensions they would most assuredly choke and be filled with ice.

The maintenance of the present depth in the Harbour of Montreal, a depth obtained after many years of labour and at a great expense, is of paramount importance, and ought not to be made dependent upon the working of a few sluice gates in a dam. The interests involved in the Harbour of Montreal are far and beyond any that can accrue to the promoters of the "Shearer Scheme," and these interests should be most jealously guarded and protected against any scheme or proposal which would in any way interfere with them, or in any way do damage to the harbour itself; nor should the construction of any works be permitted which would throw the *onus* of maintaining the harbour at its (reduced) normal level, upon the Harbour Commissioners, as is

intended by the promoters, where it is stated that the sluices *shall* be under their control; neither should there be a possibility created, that in the future, a large expenditure would be necessary to re-dredge over the harbour, to obtain a deeper depth of water, as most assuredly would be the case if the milling sluices were leased and shut up by mills and factories.

The next point for consideration is the effect the construction of this dam or embankment would have on lands on either side of the St. Lawrence.

With respect to this, Mr. Bateman states that wherever it may be necessary a levee will be built along the course of the South Channel. This, however, will not be enough, as there is every probability that by the construction of this dam the periods of flooding will be more frequent; and the question arises whether this levee will not have to extend from Longueuil to the foot of the Lachine Rapids, and from Point St. Charles to the same point, and also be of such a height and dimensions as to be an inconvenience, if not a nuisance, to the occupiers of land fronting on the river.

In treating upon the action of the St. Lawrence during the winter season, the ice becomes a principal factor, and the effects produced by it in the harbour of Montreal have been noted and commented upon by various observers, who all appear to have assumed the hypothesis expressed by Sir Wm. Logan, some forty years ago, to the effect that the rise of the water in the harbour in winter, is in consequence of the floating ice becoming jammed across St. Mary's Current. This hypothesis is disavowed by Mr. Guerin, who gives his reasons for doing so, and also enters fully into what may be considered the true solution of the winter phenomena in Montreal harbour, as well as in any river or stream in Canada.

Mr. Guerin states that this rising is due to the fact that when a river is frozen across, it partakes of the character of a tube, as the under side of the ice may be taken as equal in width to the bottom, or bed, of the stream, and, therefore, the wetted perimeter having become doubled, the velocity is reduced in the proportion of  $1 : \sqrt{\frac{1}{2}}$ , or as  $1 : 0.70$ ; or the velocity, after the surface is frozen, will be  $\frac{7}{10}$  that of the previous velocity. This velocity also depends upon the comparative roughness of the under side of the ice, for, if it be greater than that of the bed of the river, then the velocity will be less than  $\frac{7}{10}$  the previous velocity, and if smoother, the co-efficient will be greater. In proof of this Mr. Guerin submits a plan of the river in the vicinity of Moffatt's Island, prepared for the Department under the direction of Mr. Harrington of the Lachine Canal Office, Montreal, during the winter of 1880, on which it is shown that the summer velocity in that locality was seven miles per hour, and the winter velocity three and a half miles per hour, showing that the co-efficient of velocity in the harbour is not  $\frac{7}{10}$ , but  $\frac{5}{10}$ ; and he further states that he had obtained Mr. Harrington's notes of measurements made at the time of the survey, and their average would give a co-efficient somewhat less than  $\frac{5}{10}$ , but that he had adopted it in his calculations.

This reduced velocity is therefore the cause why the water in the harbour rises in the winter, which it must do to permit the volume of water brought from above to pass; for to pass equal quantities of water where the velocity has been reduced one-half ( $\frac{5}{10}$ ), it follows that the mean depth must be doubled.

Mr. Guerin proceeds to prove his statement, and shows that the elevation of the water in the harbour of Montreal after the ice had ceased to shove *this* winter, would be 110.23 feet above datum, or 12.22 feet above the level of the water on the 24th Nov., 1882, before the river had been frozen across, the mean depth on that day being 98 feet. He states that the paragraph containing this assertion was written on the 21st December, 1882, before the river had frozen across, and that its correctness could be verified in the future.

In proof of the correctness of this calculated height, I find it stated in the *Montreal Star* of the 2nd January, 1883, that the ice had jammed opposite Montreal, and the river in consequence had risen to 110.92 feet above datum, which is  $\frac{7}{10}$  of a foot higher than calculated by Mr. Guerin.

The shoving of ice is due to the struggle on the part of a river to attain its normal state, that is—to pass its volume of water at the reduced velocity consequent upon the freezing of its surface, and this struggle will continue, resulting in ice-packs and jams, until the whole body of ice is lifted to the required height; and when sufficient space is obtained to pass the quantity due to the average flow of the river and the quantity which had accumulated, due to the delay in lifting the whole body of the ice below, then an equilibrium is established, the ice will remain fixed, and the water will gradually subside until its normal winter elevation is reached.

It has been stated by Mr. Bateman that the sluices through the embankment should be closed during the winter season. This done, the whole volume of the St. Lawrence will have to pass through the South Channel.

From the records kept in the Canal Office of the fluctuation of the water in the harbour of Montreal, and the dates of the shoving of the ice during several years, supplied by the Harbour Master, it has been determined that the winter and spring elevations range from 111 to 117 feet above datum. In the spring of 1869 the river rose to 121.41 feet above datum.

With the view of ascertaining the effect at Laprairie at the time of the shoving of the ice, the whole river passing through the South Channel, Mr. Guerin has prepared a series of calculations, from which it is learned that, at that time, the elevation of the water in the South Channel would become 123.00 feet, and of the river at Laprairie, 123.50 feet, and as the elevation of John street, Laprairie, opposite Poissant's Hotel is 121.88 feet, it follows that that street would be flooded to a depth of 1.62 feet, or 1 foot 7½ inches.

These calculations are based on an average rise in the river at the time of the shoving of the ice to 114 feet above datum, and it may therefore be assumed that, if the embankment be constructed and the sluices kept closed, Laprairie and all surrounding country below the level of 123.50 feet above datum will be flooded, unless a sufficiently high levee be built to keep the river within bounds.

The question of floods at the time of the shoving of the ice has also to be considered, and the flood of 1869 is taken by Mr. Guerin as an example.

On the 13th April of that year the ice shoved in the harbour,—on the 18th it shoved again, and on the 19th further shoving took place, resulting in the flooding of Griffintown, the flood lasting until the 23rd. From the Canal registers it has been ascertained that on the 15th April the elevation of water in the harbour was 109.75 feet above datum; on the 18th 116.95 feet, on the 22nd 121.41 feet; and on the 23rd it had fallen 115.25 feet.

From the data thus obtained, it has been computed, that if the proposed embankment had been in existence in April 1869, the sluices all closed, and the river compelled to pass through the South Channel, the elevation of the water would have been 131.43 feet above datum.

The elevation of the water at Laprairie during this flood was ascertained to be 125.72 feet, or 4.31 feet higher than at Montreal, and of course the whole place was flooded, and the inference therefore is, if the whole of the water of the St. Lawrence is passed through the South Channel, and a flood similar to that of 1869 should occur—which is always possible—then the whole of the banks of the river to the foot of the Lachine Rapids must be overflowed, and the damage done would be beyond measure or recompense; and in fact so large would it be, that it would far outweigh all the advantages to be derived by a Company from the construction of the proposed embankment at Montreal.

It may be stated here that the general elevation of Point St. Charles district is from 121 to 122 feet above datum, and the elevation of Chaboillez Square in the city is 120 feet, and it may thus be plainly seen that the consequences to Montreal by the construction of this embankment would be most serious.

To sum up. By the construction of the embankment proposed, with the sluices always open, the water in the Harbour of Montreal might possibly be maintained at a height of 9½ inches below its present normal summer level; that the interference with the navigation would cause a small increase in the length of the trips of the

ferry steamer between Montreal and Laprairie, or of those of the steamers which descend the Lachine Rapids; that flooding of both sides of the river to at least Laprairie would be of annual occurrence, with the certainty that during a flood similar to that of 1869, a very large extent of country and of the city of Montreal would be submerged; and in view of these facts it becomes very doubtful whether the possible loss and damage which would be caused if the works proposed be constructed, would not greatly exceed all or any of the advantages claimed by the promoters of the scheme and endorsed by their engineer.

In this matter there are other interests to be looked at than the mere granting of privileges to a company, who propose to obtain from them a sufficient sum to cover working expense and dividends on their outlay. No doubt the creation of further milling and manufacturing power at Montreal, and providing another crossing for railway traffic and highway travel as well across the St. Lawrence, would be of benefit, but if this benefit is to be created by causing damage, discomfort and loss to those who occupy lands on either side of the river above the site of the proposed embankment, and who have rights and privileges which must be respected and regarded, then it is plainly to be stated that neither authority nor permission should be given to any person or body corporate to construct the works proposed by the St. Lawrence Bridge and Manufacturing Company.

Any interference with so great a river as the St. Lawrence, whereby any of its channels or passages are closed, or its course in any way changed or diverted, should be guarded against with a most jealous hand. Canada has had one experience in interfering with this river at the entrance to the Beauharnois Canal; for what was thought to be a simple matter—the mere closing of a channel, or passage between an island and the mainland, caused a flooding of the lands bordering Lake St. Francis, and to settle the claims for damages sustained involved the expenditure of a very large amount of money, and claims of a similar kind and nature would follow after the construction of the proposed embankment at Montreal, and it becomes questionable whether such claims should be settled and paid by the Company which had constructed the embankment, or the Crown which gave authority for its construction.

It may be remarked that not any reference has been made herein to the probable effects the presence of the proposed embankment in the harbour will have on the Lachine Canal.

It has been shown that with all the sluices closed, the water in the harbour will be reduced 3 feet below low water, summer level, or when there is 17 feet depth on the sill of lock No. 1; and as there would always be a probability that, if open as proposed, the sluices might, from causes beyond control, become, in whole or in part, closed during the season of navigation, a reduction in depth on the sill of lock No. 1 would, as a consequence, follow, and the admission of deep draught vessels become an impossibility; and the benefits and advantages now enjoyed without interruption or interference, advantages obtained at great expense for the trade and traffic of the Dominion, would be destroyed.

I have the honour to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

*Chief Engineer.*

F. H. ENNIS, Esq.

Secretary, Department Public Works.

DEPARTMENT OF PUBLIC WORKS,

Ottawa, 12 March 1883.

SIR,—I have the honour to submit the following report in accordance with your instructions directing me to procure the data necessary to ascertain the consequences which will result to existing interests, from the construction of works proposed by

"The Montreal St. Lawrence Bridge and Manufacturing Company," in the Harbour of Montreal, designed by Mr. T. Foster Bateman, M. I. C. E., who submits plans and description thereof, copies of which I have received.

*Data Sought.*—In searching for such information as is already known respecting the river opposite Montreal, I have to acknowledge the politeness of the Commissioners and officers of the Harbour Board in offering to place at my disposal any plan or document in their possession which I might require. I accordingly obtained from their office a section of St. Mary's Current with a plan of the harbour showing its current line and velocities on a given day, which have saved me much labour.

I have to make a similar acknowledgment to the Officers of the Canal office in Montreal, who have supplied me with the elevations of the water in the harbour for every day throughout the past year, and also a plan of that portion of the river in the vicinity of Moffat's Island.

In order to ascertain the state of the river on any given day, bench marks were established on the south shore between Longueuil and Laprairie, and a similar course was pursued on the harbour side from a point below the harbour to the mouth of the St. Pierre River above the Victoria Bridge.

Before the breaking up of the ice, a section was obtained of the channel on the south side of St. Helen's Island last March, and the velocities of the water passing this section were found at the time of high water last summer. You will find these sections, &c., at the end of this report.

*Former Reports*—Previous to the introduction of this scheme, various experts were appointed from time to time in years past, to examine the Harbour at Montreal and recommend some plan both for improving the navigation of the river in its vicinity and preventing the floods which are known to occur at certain times. If you have read their reports, you must have seen that they were invariably based on hypotheses and opinions which had no foundation in fact.

An engineer's opinion is of no more value than that of any other intelligent man. By an "opinion" I mean a statement which he supposes to be correct, but the accuracy of which he is not able to prove nor has he ever known it to have been proven by any one else. Such a statement is worthless and should not be received. The phrases "I believe," "I think," "I am of opinion," &c., appearing in a report are evident acknowledgments that the writer doubts the accuracy of his own statements. You will, therefore, not feel surprised if in the discussion of the subject I am now commencing, I ignore the hypotheses and opinions enunciated by those who have hitherto written on the subject of the Harbour of Montreal. The facts will be simply taken up as they are found to exist, and let hydraulic science declare the conclusions deducible from these facts.

*Periods of High and Low Water.*—From the information obtained from the Register in the Canal Office, as well as from observations during the spring and summer of last year, it appears there are three periods of high and low water in the Harbour of Montreal every year.

On the departure of the ice the river falls, arriving at its minimum elevation about the end of April. After this it rises and attains its maximum summer elevation in June. Then it falls until its elevation again becomes a minimum in November. After this the rains during the fall increase its elevation a little until it commences to freeze, then it rises rapidly to its maximum, which it attains as soon as the river freezes across. It then falls a little during the winter, arriving at its minimum about the end of February, then on the snow commencing to thaw it rises and attains its maximum at the breaking up of the ice.

*Description of River between Laprairie and Longueuil.*—On the south side of the river and about seven miles above the city of Montreal is situated the village of Laprairie. Here the river is not less than four miles wide. At a distance of about eight miles below this village, and on the same side of the river, is situated the village of Longueuil, where the width of the river is a little less than one mile. The portion of the river between these two villages includes the Harbour of Montreal, and is contracted and divided into channels by Nun's Island, the piers and abutments

of the Victoria Bridge, and those several islands [below the latter, the principal of which is St. Helen's Island, the last of the group being Ile Ronde] situated below St. Helen's.

St. Helen's Island divides the river into two channels, the one on the harbour side being called "St. Mary's Current," that on the opposite side is called "the South Channel."

The action of the water in these two channels will engross the principal part of the present discussion.

Looking at the map of the river from Laprairie to Longueuil, it can be seen at once that it is not in train in any part of this distance for one hundred feet of its length. No formula for finding the velocity in terms of the inclination is, therefore, applicable to this portion of the river.

*Proposed Scheme.*—The proposed scheme contemplates turning the St. Lawrence into the South Channel by a dam from Point St. Charles to St. Helen's Island. This dam is to contain sluices for the two-fold purpose of milling service and of regulating the depth of water in the harbour.

*Subjects to be investigated.*—In examining what the consequences will be to existing interests when the works contemplated in this scheme shall have been completed, it becomes necessary to examine,

1. How it will affect the depth of water in the harbour, and
2. How it will affect the land on either side of the river.

*Datum of elevations and units of measurement.*—All elevations of the harbour are referred to the sill of Lock No. 1 Lachine Canal, and are computed from a datum 81 feet below this sill. It is considered low water in the harbour when there is a depth of 17 feet on this sill, so that the elevation of the sill is 81 feet, and the elevation of low water is 98 feet above datum.

The units of measurement in the present report will be *one foot and one second*.

In order that the mind may not be interrupted while pursuing the thread of the argument throughout this discussion, all calculations and formulæ are placed in notes at the end, being designated by letters of the alphabet, so that they can be conveniently examined when necessary.

#### SCHEME IN OPERATION DURING THE PAST YEAR.

I propose now to examine what the results of the scheme would be, had the works been completed and in operation during the past year, and with this view, I have the honour to submit to you the section across St. Mary's Current as well as the plan of the harbour showing the current line, both of which documents have been already mentioned.

You will perceive that the section line cuts the current line at an angle of  $50^{\circ}.30'$   
 $5.75 + 5.34$   
 and at the point of occurrence the velocity is  $\frac{\quad}{2}$  miles per hour, or 8,132 feet per second.

From this we find that the mean velocity computed at right angles to the section will be 5.65 feet per second. This was the velocity on the 20th May, 1876, when the current line was obtained, and by it we are enabled to obtain the velocity at this place in any given stage of the river.

*Discharge of the River St. Lawrence.*—The River St. Lawrence was at its maximum summer elevation on the 6th June last, and on that day there was passing in it 431,733 cubic feet per second—see note A (1) and note B (1) at the end.

The elevation of the river was in the vicinity of its minimum on the 24th Nov. last, and on that day it was discharging 281,581 cubic feet per second—see note A (3) and note B (3).

Let any day be assumed between these limits and let us examine what the condition of the harbour would be on that day, should the proposed scheme be in opera-

tion. Let the 14th of September last be proposed as the day for this examination, the elevation of the water in the harbour being then 99 feet, or one foot above low water.

*Condition of the River on the 14th Sept., works in operation.*—On referring to note A (2) at end, it will be seen that the discharge through St Mary's Current on the 14th Sept., was 270,242 cubic feet per second, and the discharge through the South Channel, per note B (2), on the same day was 19,175 cubic feet per second, and when all the river passes through the South Channel, the surface will be raised from an elevation of 99 feet to 108 feet, (see note D). This should be 107·84, but 108 is adopted for brevity. This would be the elevation in the South Channel on 14th September, had the proposed dam been built and all the sluices closed on that day.

In this state of things the only supply to the harbour is the Lachine Canal, and the water which backs into it from the river below the islands or opposite Longueuil. It is claimed that 85,000,000 cubic feet per hour will pass into the harbour by the Ile Ronde Channel. This will be noticed presently.

As the difference of elevation between the water in the harbour and that at Longueuil before the works were built was about 2·25 feet, it follows that on the 14th September last, the elevation of the water at Longueuil was 99·00—2·25 or 96·75 feet above datum.

If the river opposite Longueuil were in a quiescent state, then, after the works were built, the harbour would be supplied from that locality in virtue of the hydrostatic pressure, and the elevation would be the same as at Longueuil or 96·75 feet. But according to Bayfield's chart, the river there has a velocity of four knots an hour, and as it is a principle in hydraulics that the lateral pressure of running water is equal to the whole head minus the head due to the velocity, this elevation of 96·75 must be diminished by the head due to four knots an hour so as to obtain the actual elevation of the water in the harbour.

The head due to a velocity of four knots an hour is  $\frac{7}{10}$  feet; hence the elevation of the water in the harbour on the 14th September, would be 96·75—0·70 or 96·05 feet. It is thus reduced  $99·00 - 96·05 = 2·95$  feet, or say *three* feet below the elevation it had before the construction of the works.

It must be borne in mind that the contribution from the Lachine Canal does not assist in lessening this deficiency, as it has already contributed to raise the elevation at Longueuil to 96·75 feet, and it is credited there with its discharge.

To restore this amount of 3 feet, the sluices are opened according to the proposed scheme, and a quantity equal to 850,000,000 cubic feet per hour, or 236,111 cubic feet per second is taken from the South Channel and poured into the harbour. Let us now investigate the result of this operation.

At this stage of the investigation it becomes necessary to bear in mind, that, before the sluices were opened, a quantity equal to 287,129 cubic feet per second, or the whole river was being discharged through the South Channel (see note D), and its elevation had risen from 99 feet to 108 feet above datum: so that at this elevation there is an equality between the discharges of the South Channel and the River St. Lawrence, and it required an accumulation of 9 feet of water over its previous depth in the South Channel before this equality was established.

It follows that during the time this accumulation was taking place there was only a portion of the river passing to Longueuil, for the remaining part went to form the accumulation until the water was raised 9 feet above its previous level: after this the entire river passed on to Longueuil and the equality was restored between the discharges through the South Channel and the river.

While this state of things exists, the water in the harbour being 3 feet below its legitimate level, and 2 feet below the low water level and 12 feet below the level of the water in the South Channel, the sluices are opened, and through them a quantity equal to 236,111 cubic feet per second is passed into the harbour. This will undoubtedly give temporary relief by raising the level of the water in the harbour, but it will be only temporary, for it must not be forgotten that there was at the same time a quantity passing through the South Channel equal to 287,129 cubic feet per second

(note D). It follows therefore that  $287,129 + 236,111 = 523,240$  cubic feet per second is passed from the South Channel by the operation; while the amount supplied to it is only 287,129 cubic feet per second. Hence the accumulation of 9 feet will quickly diminish, and this diminution of head will diminish the discharge through the sluices and the South Channel.

This diminution must continue until an equality is restored, or until the discharge of the St. Lawrence is equal to the sum of the discharges through the South Channel and through the sluices; that is, until the sum of these two latter discharges is equal to 287,129 cubic feet per second. It is only when this state of things exists, that the level of the South Channel or that of the harbour can become permanent. This is the state at which the river must ultimately arrive, and the level of the water in the harbour will then be  $\frac{1}{80}$  feet below the level it previously had, as will be seen below.

*Elevation of the South Channel and harbour when the discharge of South Channel and sluices on one side equals that of the river on the other side.* By looking at the investigations contained in notes D (2) to D (9) it will be seen, note D (4), that when all the sluices are opened and an equilibrium established as stated in the margin, the elevation of the South Channel will be 103.61. At the same time the elevation of the harbour, note D (9), will be 98.20.

This elevation 98.20 shews the permanent state of harbour, or the state at which it will arrive after the supply through the sluices, plus the discharge through the South Channel, equals the discharge of the river south of the embankment.

It has been already shown that in this state of things no further increase can be afforded to the harbour through the sluices, but it is stated in the report submitted with the proposed scheme, that a quantity equal to 85,000,000 cubic feet per hour will be supplied to the harbour through the channel between Ile Ronde and St. Helen's Island. I cannot find any data to warrant a conclusion so definite as this—some water will pass through that channel certainly, but how any can be made to pass into the harbour the report accompanying the plans of the scheme does not state. The velocity in the South Channel; the elevation of the surface of this channel above that of St. Mary's Current; the dimensions of the channel between St. Helen's Island and Ile Ronde; the angle this channel makes with St. Mary's Current, as well as the velocity of this current, are all functions of the quantity which would have a tendency to pass through to the harbour.

Until it can be shown how this quantity of 85,000,000 cubic feet per hour can be passed into the harbour, it cannot be allowed to enter into the computations embodied in this report.

The elevation of the harbour before the works were built was.....99 00

The elevation after an equilibrium becomes established.....98.20

Amount by which the harbour is lowered..... 0.80 ft.

This quantity 0.80 feet, or  $9\frac{1}{2}$  inches, is the amount by which the harbour would be lowered in consequence of the existence of the proposed works.

*The elevation of the South Channel, and consequently the discharge from the sluices cannot be increased during the period of navigation.* It has been already shown that there is no permanence in the level of either the South Channel or the harbour until the discharge of the St. Lawrence is equal to the sum of the discharges through the South Channel and the sluices. It appears evident from this, that if we want to raise the level of the water in the South Channel, we must make the discharges from the sluices and through the South Channel taken together, less than the supply from the St. Lawrence; but if we do this, we lower the level of the water at Longueuil and lower accordingly the level of the water backed therefrom into the harbour. Let us assume an example which is likely to occur.

Suppose the South Channel is reduced three feet, and that we want to regain this head. To do this we close the sluices that the water may accumulate. The elevation in the South Channel having been reduced by 3 feet stands at 104.84 above

datum, see note D (1), and its mean depth becomes 7.58 ft. The quantity of water passing through it at this depth will be 174,967 cubic feet per second, (see note E.) This quantity increased by the discharge from the Lachine Canal will give 177,255 cubic feet per second passing to Longueuil, on having closed the sluices.

I have now the honour to submit a section of the river at Longueuil, taken from Bayfield's Chart, where it will be seen that the mean depth when it is low water in the harbour is 19.35 feet, the river being then discharging 277,243 cubic feet per second, see note B (3.)

From these data we find (see note E) that the mean depth at Longueuil will be reduced to 14.34 feet, or in other words, the level of the water at Longueuil is reduced 5 feet below its level at low water on shutting off the sluices, and as the level which affects the harbour there was originally 3 feet below that of the harbour, or at an elevation of 96.00 feet, it follows that the level of the harbour would be reduced to an elevation of  $96.00 - 5.00 = 91.00$  feet above datum.

This shows that the level of the water in the harbour would be reduced 7 feet below low water by the operation—of course 91 feet is the minimum, and this level must be of very short duration, as the water will commence to rise immediately on the discharge increasing through the South Channel, or as the water accumulates and the mean depth increases in that channel.

*Conclusion of discussion on sluices.* The conclusion to be drawn from what has been discussed up to this point in the present report is this:—The sluices once being opened and permitted to run for any time, cannot be closed again without lowering the level of the water in the harbour below the level of low water.

#### CONDITION OF THE HARBOUR IN WINTER.

In discussing every project for harbour improvements at Montreal, the ice becomes a function of the investigation. It is well known that before the river becomes frozen across, it first commences to rise, and continues to do so until the ice bridge is formed; yet this rising takes place notwithstanding that there is no visible cause to warrant the supposition that the quantity of water in the river is increasing, for no rain or snow had fallen to cause such an increase. It rises because the wetted perimeter is increasing by the ice bordages, as will be seen presently.

Immediately after the river has frozen across it rises suddenly. It then subsides to a constant level for a short time, after which it gets lower, as has been already described. At the approach of spring it rises and breaks up the ice, and this rising is generally greater than that which took place in the previous winter. All these phenomena occur in accordance with the laws established by hydraulic science, as will be shown further on.

The several experts who have been at times commissioned to report on improving this harbour have referred to these phenomena, and in opposition to the first principles of hydraulic science they impute the cause to "ice dams" and "ice jams" formed in St. Mary's Current, quoting from a paper read by Sir Wm. Logan on the subject of geology forty years ago before the Geological Society of London, in which he alludes to the winter phenomena in the St. Lawrence.

I wish it to be understood that I disavow any intention of stating anything here which may have a tendency to lessen the prestige attached to the memory of Sir Wm. Logan. No; I had the pleasure of his acquaintance and enjoyed his friendship for several years in the latter part of his life. He had no greater admirer of his abilities than I was, nor has any one a greater respect for his memory than I have.

Hydraulic science was not developed then as it is now, and Sir Wm. Logan was too much engrossed in the development of his favourite science, geology, to devote much attention to hydraulics.

In consequence of this, on witnessing the shoving of the ice in St. Mary's Current, he did not understand the law that governed the forces which produced the phenomena that were taking place in his presence; but, being determined to find an explanation, he framed an hypothesis by imagining that the great quantity of ice

coming down the river becomes packed at the foot of the St. Mary's Current and forms a dam extending in some places to the bottom. Hence the rise of water. Hence the floods, etc.

In every report on the improvement of the harbour of Montreal, this hypothesis is adopted, and it is now generally believed that the river rises in winter in the harbour of Montreal in consequence of the floating ice becoming jammed and forming a dam across St. Mary's Current. Now, the specific gravity of ice is about  $\frac{9}{10}$  that of water, so that a piece of ice in the river will have  $\frac{9}{10}$  of it volume below and  $\frac{1}{10}$  above the surface of the water. It would therefore be as competent for that piece of ice to rise in the air as to sink deeper in the water. There are only two ways for floating ice to get aground. One is, when in moving forward the submerged portion meets with a shoal or reef. The other is, when being stationary the water subsides from under it. It is impossible that ice can sink deeper than its specific gravity will permit. The current may force a moving piece under stationary ice when its submerged part projects below that of the stationary, but the whole will be proportionally lifted up.

#### CAUSE OF HIGH WATER IN WINTER.

It is not an abnormal state of things that the River St. Lawrence should rise when frozen across. There never has been a river, nor stream, nor rivulet that did not rise above its previous level on being frozen across. Hydraulic science not only demonstrates that such a rise must take place, but it enables us to ascertain the height to which the rise will ascend. Here are the facts.

It is a well known principle in hydraulics, that in the same stream, the velocity varies inversely as the square root of the wetted perimeter, and it is shown in notes A and B that the wetted perimeters of St. Mary's Current and the South Channel, are for all practical purposes equal to the width of the stream in each case where the section was taken. Hence it follows that the moment the river is frozen across, the wetted perimeter is twice what it was in open water, and the ratio of the velocities in both cases will be as  $1 : \sqrt{\frac{1}{2}}$ , or as  $1 : 0.70$ ; or in other words, the velocity after being frozen across will be  $\frac{7}{10}$  the previous velocity.

Before the ice was formed on the river the maximum velocity was on the surface and in the centre of the stream—after being frozen across, the river assumes the character of a tube, and the fillet of maximum velocity is transferred from the surface to the middle of the depth as in a pipe, provided the under surface of the ice and the bottom of the river are of the same degree of roughness or smoothness. Should the under surface of the ice be rougher than the bottom of the river, the fillet of maximum velocity will be found nearer the bottom, and its velocity will be less, and *vice versa*. It follows then that the winter velocity of a stream will depend on the roughness or smoothness of the under surface of the ice, and if this roughness is greater than that of the bottom of the river, the velocity of the stream will be less than  $\frac{7}{10}$  its previous velocity, and if smoother the co-efficient will be greater.

To form some idea of the state of the under surface of the ice, let us suppose three cubes of ice floating adjacent to one another, one of which projects four inches above the surface of the water, another two inches and the third one inch. Then the depths below the surface of the water to which these pieces will respectively extend will be thirty six inches, eighteen inches and nine inches; that is to say, the under surface is *nine* times as rough as the upper surface. From this example we can form some idea of the roughness of the under surface of the ice in the Harbour of Montreal; and we may reasonably expect that the co-efficient of velocity will be less than  $\frac{7}{10}$ ; but fortunately for our present inquiry we have the means at hand of ascertaining this co-efficient accurately. Here it is.

*Co-efficient of velocity for winter.*—I now call your attention to a plan herewith submitted, of that portion of the river in the vicinity of Moffat's Island, kindly furnished me by Mr. Harrington, of the Canal Office, under whose direction the survey was made a few years ago. It can be there seen that although the summer velocity of the river in this locality was seven miles an hour, yet the winter velocity was

only three and a half miles per hour. This shows that the co-efficient of velocity in Montreal Harbour is not  $\frac{7}{10}$  but  $\frac{5}{10}$ . Mr. Harrington has furnished me with the measurements that were made at the time of the survey, and the average would give a co-efficient somewhat less than  $\frac{5}{10}$ : but I shall adopt the co-efficient as stated on the plan.

*Mean depth doubled in winter.*—From the foregoing it can be easily shown that the mean depth of the harbour is doubled in winter—thus:

Let  $Q$  = Discharge of the river in feet per second.

$W$  = width.

$v$  = velocity in feet per second.

$H$  = mean depth.

Then we get

$$Q = W. H. v \text{ and } \frac{Q}{W} = H. v.$$

Here  $Q$  and  $W$  are both constant quantities, for neither the discharge nor the distance between the river banks is affected by the frost. It follows that the product  $H. v$  is constant, so that if  $v$  is diminished,  $H$  must be increased in the same ratio. Then if  $v$  becomes  $\frac{1}{2} v$ ,  $H$  must become  $2 H$ .

Now if  $v$  denotes the velocity of the current before being frozen across and  $H$  the mean depth at that time, these quantities in winter must become  $\frac{1}{2} v$  and  $2 H$ , or in other words the mean depth of the river in the Harbour of Montreal, while free of ice will be doubled when the river is frozen across.

*Height to which River will rise in winter.*—We have now the means of ascertaining the height to which the river will rise on being frozen across in any year. Here are the facts for the present winter.

On the 24th Nov. last immediately before any ice was formed, See notes A (3) B (3).)

	Sq. ft.
The sectional area of St. Mary's Current was.....	54,865
Do South Channel.....	4,685
Entire sectional area of both channels .....	59,550
Water line of St. Mary's Current at section.....	2,250 ft.
Do at South Channel.. .....	2,625 "
Entire width of water surface .....	4,875 ft.
Mean depth = $\frac{56,550}{4,875}$ = 12.22 feet.	
Elevation at Section St. Mary's Current.....	97.25 } mean
Do South Channel.....	98.75 } 98.00
Elevation at Lock Sill.....	98.50

Hence  $98.00 + 12.22 = 110.22$ . This will be the elevation of the water in the harbour after the ice has ceased to shove.

The present passage of this report is written the 21st Dec., and before the river has yet been frozen across; it can therefore be easily ascertained whether these figures will become verified.

*Shoving of ice.*—It has just been shown that on being frozen across the river must rise in the harbour to a height equal to its mean depth above its previous level. When it settles at this elevation it is in its normal state; but during the shoving of the ice the state of the river is abnormal. It is by the shoving and lifting of the ice that it arrives at its normal state.

Explanation.

Let us suppose that it becomes frozen in the channels on each side of St. Helen's Island while it is yet open water at Victoria bridge, and above this bridge; a circumstance which generally occurs before the river is frozen permanently. Then the stream under the ice moves only with half its previous velocity, while the open water above preserves its entire velocity. It follows that the open water must accumulate

on reaching the slower current which is covered with the ice, it will therefore lift up the ice, and continue to do so until its mean depth is doubled. At first the water must rise higher than the mean depth and for the following reason :

Whereas it will be in its normal state only when its mean depth is doubled, the mean depth of the whole St. Mary's Current and the South Channel must be doubled before this state shall have been arrived at. The open water in front of the ice increasing faster than the ice is being lifted, the ice will become broken and shoved by the increasing flood until the whole body is lifted to the required height : then the water in front having space enough to pass through the abnormal accumulation will subside. It is manifest then that the river will rise higher during the shoving of the ice than at any period during the winter.

WINTER STATE OF RIVER WHEN ALL THE WATER PASSES THROUGH THE SOUTH CHANNEL.

I have now to call your attention to the record of the elevations of the harbour kept at the Canal Office, and I have furthermore to submit a report supplied to me by the Harbour Master of Montreal showing the dates of shoving of the ice for several years past.

Comparing these documents it can be seen that at the time the ice shoves, the river rises to its maximum winter and spring elevations. These elevations vary from 111 to 117 feet above datum. In the spring of the year 1869 the elevation was 121.41 feet.

Let us adopt 114 feet as the general maximum elevation in ordinary years during the shoving of the ice, and let us compute the elevation in the South Channel should it then be compelled to discharge the entire river. See notes F (1), (2), (3), (4).

The elevation in South Channel is found to be 123.00. Note F (3).

The elevation at Laprairie is found to be 123.50. Note F (4).

The general elevation of John street Laprairie opposite Poissant's hotel, is 121.88.

This street would therefore be submerged during the shoving of the ice every year after the works shall have been completed and the sluices closed.

FLOODS.

When a flood takes place in the city of Montreal, or Laprairie, the cause is imputed to "ice jams" and "ice dams" supposed to have been formed on each side of St. Helen's Island.

I have no data respecting any of these floods but that of the year 1869 which is given in the Harbour Master's report already mentioned.

It will be seen in that report, that on the 13th April 1869 the ice shoved in Montreal Harbor. On the 18th it shoved again and on the 19th it shoved flooding Griffintown, continuing until the 23rd.

On referring to the Register kept at the Canal Office it will be seen that on the 15th April, 1869, the elevation of the water in the harbour was 109.75 ; on the 22nd it was 121.41 and on the 23rd it was 115.25 feet above datum.

The levels which were taken to Laprairie last year showed that the elevation there of the flood of 1869 was 125.72 feet above datum—the inhabitants pointing out by a certain mark the height to which that flood had risen.

Now, it is shown in note F (4) that an elevation of 123.00 in the harbour would raise the hydraulic amplitude at Laprairie to an elevation of 123.50 ; consequently an elevation of 121.41 in the harbour would cause an elevation at Laprairie less than 123.50, and much less than 125.72. It follows therefore that the flooding of Laprairie in 1869 could not have been caused by the raising of the water in Montreal Harbour, but it must have been caused by the surcharging of the river on account of some unusual quantity of water poured into it from some other source. This is the conclusion to which hydraulic science leads us.

I am aware that this conclusion is at variance with the generally received opinion. I am also aware that there are many who despise the deductions of science if they conflict with their own previously conceived hobbies.

In view of all this being the case, I felt anxious to prosecute the enquiry farther, although I had no doubt as to the result. Accordingly the Rain and Snow Registers kept by the Department of the Montreal Waterworks and McGill College were referred to, and from examination of these it appears, that although the snow gauge generally registers a depth of snow during each winter varying from six to nine feet, yet in the winter of 1868-69 the register showed an amount of fourteen feet, and of this amount six and a half feet was registered for the single month of February.

This great depth of snow spread over the water shed of the St. Lawrence, having been thawed in the spring and conveyed to the river by its tributaries, it thus became surcharged, and in consequence it flooded the country. The flood therefore arose from the fact that the river was surcharged by the quantity of water poured into it by its own tributaries and not from any imaginary "ice jams" or "ice dams" in the vicinity of Montreal. This conclusion is further verified by the Register in the Canal Office which shows that during the entire summer of 1869 the water in the Harbour of Montreal was unusually high, or in other words, the quantity of water produced by the snow of the previous winter was competent to raise the level of the river during the whole of the succeeding summer.

*Consequences of Flood of 1869, if proposed works were then in existence.* Let us now inquire into the consequences which would result, had the proposed scheme been in existence during the flood of 1869.

On reference to note G (3), it will be seen that if the proposed scheme were in existence at that time, and all the waters of the river were made to pass through the South Channel, levees being built confining that channel to a width of 3,000 feet, the elevation of the water in it on the 22nd April, 1869, would be raised to 131.43 feet above datum.

The elevation of the railway track approaching the Victoria Bridge, Point St. Charles as obtained at the City Sureyor's Office, Montreal, is 122.55 feet.

The general elevation at Point St. Charles is from 121 to 122 feet.

Point St. Charles District is drained into the sewers of the city proper.

The elevation of Chaboillez square in the city is 120.00 feet.

With these levels the consequence to the city would be serious, and considering these facts, it becomes at once evident that the sluices should not be closed during winter. They should be open, giving as much freedom as possible at such a season of the year to the flow from the South Channel.

Respectfully submitted,

THOS. GUERIN,  
*Engineer, Department Public Works.*

HENRY F. PERLEY, Esq.,  
Chief Engineer, Department of Public Works.

#### NOTE A (1).

ST. MARY'S CURRENT ON 6TH JUNE, 1882.

SEE SECTION.

Elevation of water at section on 6th June.....	102.91 feet.
Length of section on surface on 6th June.....	2,287.50 "
do when level with 17 feet on sill.....	2,262.50 "
Area of section on 6th June.....	67,948.38 sq. ft.

Wetted perimeter	do	.....	2,316.39 feet.
Hydraulic depth	do	.....	29.33 "
Mean depth	do	.....	29.70 "
Hydraulic depth time of current line		.....	33.22 "
At the time current line was obtained.	$\left\{ \begin{array}{l} \text{velocity at section } \frac{5.75 + 5.34}{2} = 5.54 \text{ miles per hour.} \\ \text{Mean velocity perpendicular} \\ \text{to section} \dots\dots\dots \end{array} \right\} 5.65 \text{ ft. p. second.}$		
Velocity on 6 <sup>th</sup> June		.....	5.31 ft. p. second.
Discharge June 6th, Q			= 360,805 cub. ft. p. sec.

## NOTE A (2)

ST. MARY'S CURRENT ON 14TH SEPT., 1882.

SEE SECTION.

Elevation of water at sill of lock	.....	99.00 ft.
do at section	.....	97.53 "
Water line or length of section, 14th Sept.	.....	2,250.00 "
Area of section on 14th Sept.	.....	55,720 sq. ft.
Wetted perimeter	do	..... 2,275.47 ft.
Hydraulic depth	do	..... 24.47 "
Mean depth	do	..... 24.76 "
Hydraulic depth time of current line	.....	33.22 "
Velocity perpendicular to section at time of current line	.....	5.65 ft. p. sec.
Velocity perpendicular to section on 14th Sept.	.....	4.85 "
Discharge on 14th Sept. Q		= 270,242 cubic feet p. second.

## NOTE A (3)

ST. MARY'S CURRENT ON 24TH NOV., 1882.

SEE SECTION.

Elevation of water at sill of lock	.....	98.50 ft.
do at section	.....	97.15 "
Water line of section, Nov. 24th	.....	2,250.00 "
Area of section,	do	..... 54,865.63 sq. ft.
Wetted perimeter,	do	..... 2,271.81 ft.
Hydraulic depth, Nov. 24	.....	24.25 "
do time of current line	.....	33.22 "
Mean depth, Nov. 24	.....	24.48 "
Velocity perpendicular to section at time of current line	.....	5.65 p. sec.
Velocity perpendicular to section on 24th Nov.	.....	4.82 "
Discharge on Nov. 24, Q		= 264,452 cubic feet per second.

NOTE.—On the 30th Nov., elevation at sill was..... 98.00 ft.  
or low water.

At that date, Nov. 30th, the elevation at section was... 96.85 ft.

Hence, discharge at low water, Q = 260,114 cubic feet  
per second.

## NOTE B (1).

SOUTH CHANNEL ON 6TH JUNE, 1882.

SEE SECTION.

Elevation at sill on 6th June.....	104.50 ft.
do at section across South Channel.....	103.23 "
Area of part A B C of section.....	9,070 sq. ft.
Length of water line.....	1,175.00 ft.
Wetted perimeter.....	1,176.00 "
Mean velocity.....	5.52 ft. p. sec.
Mean and hydraulic depth .....	7.72 ft.
Discharge through part A B C, June 6th, 1882.....	50,066.00 cub. ft.
Area of C E F.....	7,001.00 sq. ft.
Length water line .....	1,487.00 ft.
Mean velocity on 6th June.....	2.98 ft. p. sec.
Mean depth.....	4.70 ft.
Discharge through part C E F.....	20,862.00 cub. ft.
Entire discharge.....	$20,862 + 50,066 = 70,928.00$ "
Entire area of section.....	16,071.00 sq. ft.
Entire width of water way.....	2,662.00 ft.
Mean depth of entire section.....	6.037 "
Entire discharge of St. Lawrence on 6th June, 1882 :	
St. Mary's Current, p. Note A.....	360,805 cub. ft.
South Channel.....	70,928 "
$Q = 431,733$ " p. sec.	

## NOTE B (2).

SOUTH CHANNEL ON 14TH SEPT., 1882.

SEE SECTION.

Elevation at sill on 14th Sept.....	99.00 ft.
do at section South Channel.....	99.00 "
Area of part A' B' C' of section.....	4,374.00 sq. ft.
Length of water line.....	1,002.00 ft.
Wetted perimeter.....	1,003.00 "
Hydraulic depth.....	4.36 "
Mean depth.....	4.37 "
Mean velocity through A' B' C' .....	4.15 ft. p. sec.
Discharge through A' B' C' .....	18,152.00 cub. ft.
Area of part C' E' F' .....	853.00 sq. ft.
Length of water line .....	1,100.00 ft.
Wetted perimeter.....	1,100.00 "
Hydraulic depth .....	0.77 "
Mean depth.....	0.77 "
Velocity .....	1.20 ft. p. sec.

Discharge..... Q = 1,023.00 cub. ft. p. sec.  
 Entire discharge through South Channel on Sept. 14th. 19,175 cub. ft.  
 Discharge through St. Mary's Current, p. Note A (2) ... 270,242 "

Entire discharge of river on 14th Sept..... 289,417 "

NOTE.—Mean depth for entire section..... 1.96 ft.  
 Mean depth at 3,000 ft. width..... 1.74 "

### NOTE B (3)

SOUTH CHANNEL ON NOV. 24TH, 1882.

SEE SECTION.

Elevation of water at sill Nov. 24th..... 98.50 ft.  
 do at section line..... 98.75 "  
 On Nov. 30th (Low water) Elevation the same..... 98.75 "  
 Area of part A' B' C' ..... 4,124.00 sq. ft.  
 Length of water line..... 1,000.00 ft.  
 Wetted perimeter..... 1,001.00 "  
 Mean depth..... 4.12 "  
 Hydraulic depth..... 4.12 "  
 Mean velocity..... 4.03 ft. p. sec.  
 Discharge through A' B' C' ..... 16,619 cub. ft. "  
 Area of portion C' E' F' ..... 561.00 sq. ft.  
 Length of water line..... 1,100.00 ft.  
 Wetted perimeter ..... 1,100.00 "  
 Mean depth..... 0.51 "  
 Hydraulic depth..... 0.51 "  
 Mean velocity..... 0.91 ft. p. sec.  
 Discharge through C' E' F' ..... 510.00 cub. ft. p. sec.  
 Entire discharge through South Channel..... 17,129 " "  
 Discharge through St. Mary's Current per note A  
 (3) on Nov. 24th ..... 264,452 " "

Discharge of River on Nov. 24th..... 281,581 " "

Area of entire section South Channel..... 4,124 + 561 = 4,685 Sq. ft.  
 Mean depth with channel widened to..... 3,000 ft. = 1.56 ft.  
 Mean depth, the width of channel being..... 2,662 " = 1.76 "

SOUTH CHANNEL ON NOV. 30TH, 1882.

SEE SECTION.

On November 24th the elevation at sill was 98.50. It was not yet low water.  
 On the 30th the elevation at sill was 98.00 or low water.

The discharge at low water will be as follows :—

	Cub. ft.
St. Mary's Current per note A (3).....	260,114
South Channel its level being the same as on the 24th.	17,129

Total..... 277,243 cub. ft.

The discharge of the St. Lawrence at low water at Montreal is 277,243 cub. feet per second.

### NOTE D (1)

CONDITION OF RIVER ON 14TH SEPTEMBER, 1882, ST. MARY'S CURRENT TURNED INTO SOUTH CHANNEL.

Elevation on sill Sept. 14th..... 99.00 ft.

	Cub. ft.
Discharge of St. Mary's Current, Note B (2).	270,242
do Lachine Canal. ....	2,288

Quantity supplied Harbour from river. .... = 267,954 cub. ft. p. sec.

Quantity passing through South Channel B (2) 19,175 " "

Total discharge through South Channel when works shall have been built.....

287,129

cubic feet per second.

Mean depth of South Channel on 14th Sept. note B (2).....

1.74 ft.

Hence we get  $H = 1.74 \left( \frac{287129}{19175} \right)^{\frac{2}{3}}$ .....

10.58 "

Wherefore elevation of South Channel will be  $99 + 10.58 - 1.74 = 107.84$  ft.

Accumulation of water in South Channel is  $107.84 - 99.00 = 8.84$  ft. or say 9 ft.

### NOTE D (2.)

WHAT WILL BE THE DEPTH IN SOUTH CHANNEL, OR HEAD ON SLICES, WHEN THE DISCHARGES THROUGH BOTH PLACES ARE TOGETHER EQUAL TO THAT OF THE ST. LAWRENCE MINUS LACHINE CANAL.

*General Formula :*

Let Q = Discharge of St. Lawrence minus Lachine Canal.

H = Mean depth in South Channel at the instant sluices are opened or before the depth begins to diminish.

q = Discharge through sluices before the head on these begins to diminish.

h = Head on sluices at the same time, or before H or h begins to diminish.

$Q'$  = Discharge through South Channel when there is an equilibrium between the discharges of the river on one side and South Channel and sluices on the other side.

$q'$  = Discharge through the sluices at the same time or when  $Q' + q' = Q$ .

$H'$  = Mean depth in South Channel at such time.

$h'$  = Head on sluices at the same time. Hence  $H - H'$  or  $h - h'$  will represent the amount the South Channel has fallen.

Wherefore  $H - H' = h - h'$  and  $h' = h + H' - H$ .

Again,  $Q : Q' :: H^{\frac{3}{2}} : H'^{\frac{3}{2}}$  and  $Q' = Q \times \frac{H'^{\frac{3}{2}}}{H^{\frac{3}{2}}}$

$q : q' :: h^{\frac{1}{2}} : h'^{\frac{1}{2}}$  and  $q' = q \times \frac{h'^{\frac{1}{2}}}{h^{\frac{1}{2}}}$

$Q' + q' = Q \times \frac{H'^{\frac{3}{2}}}{H^{\frac{3}{2}}} + q \times \frac{h'^{\frac{1}{2}}}{h^{\frac{1}{2}}} = Q$  Substitute value of  $h'$  and we get

$H^{\frac{3}{2}} = H'^{\frac{3}{2}} + \frac{q}{Q} \frac{H^{\frac{3}{2}}}{h^{\frac{1}{2}}} (h + H' - H)^{\frac{1}{2}}$  whence  $H'$  can be found.

#### NOTE D (3).

MEAN DEPTH OF SOUTH CHANNEL SEPTEMBER 14TH 1882, SLUICES BEING OPENED AND EQUILIBRIUM ESTABLISHED.

Total discharge through South Channel note D (1)	287,129	cub. ft. per. sec.
Discharge through St. Mary's Current.....	270,242	" "
do Lachine Canal.....	2,288	" "
do South Channel before receiving St. } Mary's Current.....	19,175	" "
Mean depth South Channel, Note D (1) .....		10.58 ft.
Elevation of do September 14, Note D (1).....		107.84 "
Elevation of Top of controlling sluice p. Bateman's section .....		103.00 "
do Bottom do do do .....		98.00 "
do Centre do do do .....		100.50 "
Head on centre controlling sluice	107.84 - 100.50 = 7.34 N.	
Hence $Q = 287,129$ p. note D (1).		
$q = 236,111$ p. Bateman's Report.		
$H = 10.58$ p. note D (1).		
$h = 7.34$ from above.		

Substitute these values in general equation Note D (2).

$$(10.58^{\frac{3}{2}} = H'^{\frac{3}{2}} \times \frac{236111}{287129} \times \frac{(10.58^{\frac{3}{2}}}{(7.34)^{\frac{1}{2}}} (7.34 \times H' - 10.58)^{\frac{1}{2}})$$

The resolution of this equation will give  $H' = 6.35$  feet.

## NOTE D (4)

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HEAD ON SLUICES ALL BEING OPENED.

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*Discharges through South Channel, sluices all being opened, and equilibrium established.*

Hence

$$Q = Q \times \left( \frac{H^1}{H} \right)^{\frac{3}{2}} = 133,515 \text{ cub. ft. p. second.}$$

$$q^1 = Q - Q^1 = 153,614 \quad \text{“} \quad \text{“}$$

Mean depth of South Channel, sluices closed.....	10.58 ft.
do do sluices opened .....	6.35 “

---

Fall when equilibrium is established..... 4.23 “

*Elevation of South Channel, sluices opened.*

Elevation of South Channel, sluices opened, and the equilibrium established  
 $107.84 - 4.23 = 103.61 \text{ ft.}$

*Head on sluices when equilibrium is established.*

Height or head on centre controlling sluice will be  $103.61 - 100.50 = 3.11 \text{ ft.}$

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## NOTE D (5)

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ELEVATION OF WATER IN HARBOUR ON 14TH SEPTEMBER, 1882. ALL SLUICES  
 OPENED AND EQUILIBRIUM ESTABLISHED.

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*Elevation of surface, section Colborne Avenue, above that at Longueuil.*

The discharge through the sluices all being opened, and an equilibrium established between the discharge of the St. Lawrence on one side, and the discharges through the South Channel and the sluices on the other side is per last note.....  $q^1 = 153,614 \text{ cub. ft. per sec.}$

Lachine Canal..... = 2,288 do

---

Entire discharge through St. Mary's Current. = 155,902 do

When discharge through St. Mary's Current, note B(2)..... = 270,242 <sup>Cub. ft.</sup>

The elevation at section note A (2) ..... = 97.53 ft.

Elevation at Longueuil.....  $99.00 - 2.25 = 96.75 \text{ “}$

Height of water of section above that of Longueuil.... = 0.78 “

The elevation at Longueuil is practically the same at Colborne Avenue or at section when sluices are closed.

When sluices are opened and St. Mary's Current discharges 155,902 cub. ft. per second, the elevation at the section at Colborne Avenue above that at Longueuil will be increased approximately as follows.

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## NOTE D (6).

ELEVATION OF WATER IN HARBOUR ON 14TH SEPTEMBER, 1882. ALL SLUICES OPENED AND EQUILIBRIUM ESTABLISHED.

*Elevation of section, Colborne Avenue, over that of Longueuil.*

Let L = Distance between sections at Colborne Avenue and Longueuil.

Q = Discharge through St. Mary's Current on 14th September.....	= 270,242 cub. ft. per sec.
q = Per note D (5).....	155,902 do
a = Area of Section, Colborne Avenue, 14th Sept. =	55,720 sq. ft.
b = do Longueuil, do =	94,769 do

From above we have:

$$Q : q :: \left(\frac{0.78}{L}\right)^{\frac{1}{2}} \times b : \left(\frac{z}{L}\right)^{\frac{1}{2}} \times a \quad \text{Whence}$$

$z = 0.75$  which is the elevation of water of section at Colborne Avenue above that at Longueuil.

*Elevation at Colborne Avenue.*

Wherefore  $96.75 + 0.75 = 97.50$  = The elevation at Colborne Avenue during the discharge of  $q$  or 155,902 cub. ft. per second.

## NOTE D (7).

ELEVATION OF WATER IN HARBOUR ON 14TH SEPTEMBER, 1882. ALL SLUICES OPENED AND EQUILIBRIUM ESTABLISHED.

*Velocity at Colborne Avenue.*

Area of section at Colborne Ave. before works were built. Note A (2) 55,728 ft. sq.

Width of surface..... 2,250 ft.

Lowering of surface during discharge of 155,902 cub. ft. per second.

Note A (2).....  $97.53 - 97.50 = .03$  ft.

Hence area of section at that time will be  $55,720 - 2,250 \times .03 = 55,653$ . And

we get  $v = \frac{155,902}{55,653} \cdot 2.80$  ft. per second.

The difference of level between surface of water section at Colborne Avenue and that of still water in Victoria Basin = 1.32 ft.: but this must be increased by the head due to the velocity of the current outside the Basin, in order to obtain the difference of level between the surface of the water at section and that of the water of the Harbour.

The head due to the velocity outside the Basin is thus obtained.

On examining the current line, it will be seen that the velocity opposite Victoria Pier may, without sensible error, be considered equal to that at the section line at Colborne Avenue.

The velocity opposite Victoria Pier at the time the current line was obtained, amounted to  $\frac{5.74 + 5.80}{2} = 5.77$  miles per hour = 8.46 ft. per second.

## NOTE D (8).

ELEVATION OF WATER IN HARBOUR ON THE 14th SEPT.  
ALL SLUICES OPENED.

*Inclination of St. Mary's Current before works are built.*

The hydraulic depth at section Col. Ave. = 33.22 ft.

Do on 14th Sept., 1882. Note A (2) = 24.48 ft.

Hence the velocity at section or at Victoria pier on Sept. 14th, will be found as follows:—

$$\sqrt{33.22} : \sqrt{24.48} :: 8.46 : x = 7.25 \text{ ft.}$$

The height due to this velocity is  $\frac{8}{10}$  feet.

Hence the difference of level between the surface of water opposite Victoria Pier, and that at section Colborne Avenue = 1.32 + 0.80 = 2.12 feet on 14th Sept. 1882.

*Inclination of St. Mary's Current after works are built.*

Now supposing St. Mary's Current to be in train between Victoria Pier and Colborne Avenue after the works were built, let us find what the inclination will be, so as to discharge an amount of water equal to 155,902 cubic feet per second.

The velocity at section, note A (2) on 14th Sept. was... 4.85 ft.

Difference of level between surface of water at section and that opposite Victoria Pier is... 2.12

The velocity at same place during the discharge of 155,902 cub.

ft. per second was per last note... 2.80

Hence  $(4.85)^2 : (2.80)^2 :: 2.12 : x = 0.70 \text{ ft.}$

This quantity 0.70 is the difference of level between the surfaces of the water at Colborne Avenue and opposite Victoria Pier while the discharge is 155,902 cub. ft. per second.

## NOTE D (9).

ELEVATION OF WATER IN HARBOUR ON 14TH SEPT.  
ALL SLUICES OPENED.

*Permanent level of Harbour.*

Hence 97.50 per Note D (6), + 0.70 = 98.20.

This elevation 98.20 shows the permanent state of the harbour, or the state at which it will arrive after the supply through the sluices, plus the discharge through the South Channel equals the discharge of the river minus the Lachine Canal. It has been already shown that in this state of things no further increase can be afforded to the harbour through the sluices.

It has been stated, in the report submitted with the scheme, that a quantity equal to 85,000,000 cubic feet per hour will be supplied to the harbour through the channel between Ile Ronde and St. Helen's Island, but as it has not been shown how this can be effected, no notice can be taken of it here.

## NOTE. E.

CONDITION OF SOUTH CHANNEL AND RIVER AT LONGUEUIL, ON 14TH SEPT., 1882, WHEN  
LEVEL OF SOUTH CHANNEL IS LOWERED 3 FEET, AND SLUICES SHUT OFF.

(See section at Longueuil)

Elevation at first per Note D.....	ft. 107.84
do reduced by 3 ft.....	104.84
Mean depth at first.....	10.58
do reduced.....	7.58
Discharge at first per Note D .....	cub. ft. 287,129
Then we get	

$$\text{Hence } (10.58)^{\frac{3}{2}} : (7.58)^{\frac{3}{2}} :: 287,129 : 174,967$$

This is the discharge through South Channel when its level  
is lowered by 3 ft.

Add Lachine Canal = 2,288 cub. ft., and we get total passing  
to Longueuil on 14th Sept., when sluices are shut, and  
channel lowered 3 ft..... = 177,255 cub. ft. p. sec.

Mean depth at low water, Longueuil..... 19.35 ft.

Discharges at Low water per Note B (3)..... 277,243 cub. ft. p. sec.

$$\text{Hence } (277,243)^{\frac{2}{3}} : (177,255)^{\frac{2}{3}} :: 19.35 : 14.34$$

Hence mean depth opposite Longueuil on 14th Sept., when South Channel is  
reduced 3 ft., and sluices shut off will be 14.34 feet.

## NOTE F (1)

CONDITION OF BOTH CHANNELS WHILE ICE IS SHOWING IN ORDINARY WINTERS—THE  
ELEVATION BEING AT ITS MAXIMUM OR 114 FEET ABOVE DATUM.

*St. Mary's Current*—see section.

Area of section, elevation being 114 ft.....	sqr. ft. 92,253.90
Wetted perimeter do .....	2,549.10 ft.
Length of water line.....	2,527.50 "
Hydraulic depth.....	36.19 "
Mean depth.....	36.50 "

*South Channel.*

Area of section.....	sqr. ft. 46,064.00
Wetted perimeter.....	2,901.02 ft.
Length of water line.....	2,909.00 "
Hydraulic and mean depth.....	15.87 "

## NOTE F (2)

DISCHARGES THROUGH BOTH CHANNELS WHILE ICE IS SHOIVING OR ELEVATION AT MAXIMUM.

*St. Mary's Current.*

Admitting the river to be open when elevation is at maximum, or as high as it will be while ice is shoving, then we get

$$\sqrt{29.33} : \sqrt{36.19} :: 5.65 : x = 6.24 = \text{velocity.}$$

But being covered with ice this velocity becomes  $\frac{6.24}{2} = 3.12$ .

Discharge (Note F 1) =  $92,253 \times 3.12 = 287,829$  cub. ft.

*South Channel.*

Nov. 24th. Sectional area, Note B (3)..... sq. ft.  
4,685

do Discharge ..... cub. ft.  
17,129

Mean vel  $\frac{17129}{4685} = 3.65$  ft.

Admitting as above that this channel was open when elevation is a maximum, or as high as it would be while ice was shoving, then we should have

$$\sqrt{1.76} : \sqrt{15.87} :: 3.65 : x = 10.95 = \text{velocity.}$$

But being covered with ice this velocity becomes  $\frac{10.95}{2} = 5.47$  ft. per sec.

The discharge at maximum elevation will therefore be note F (1)  $46,064 \times 5.47 = 251,970$  cub. ft.

Hence entire discharge through both channels will be  $287,829 + 251,970 = 539,799$  cubic feet per second.

## NOTE F (3).

ELEVATION OF SOUTH CHANNEL IN ORDINARY WINTERS WHILE ICE IS SHOIVING AND THIS CHANNEL CHARGED WITH THE ENTIRE RIVER.

Let  $x$  = the mean depth at such a time then we get note F (2)

$$* 251,970 : 539,799 :: 15.87 \times \left(\frac{15.67}{2}\right)^{\frac{1}{2}} : x \times \left(\frac{x}{2}\right)^{\frac{1}{2}}$$

The resolution of this equation gives  $x = 26.03$  ft.

Hence per note B (3) we have  $98.75 - 1.76 + 26.03 = 123.02$  feet.

This would be the elevation above datum to which the water would rise in the South Channel during ordinary winters, if the proposed scheme were in operation and the sluices all closed.

\*Note—This should be diminished by the discharge from the canal, but there being no navigation at this season, the quantity is too insignificant to be noticed.

## NOTE F (4)

ELEVATION OF HYDRAULIC AMPLITUDE AT LAPRAIRIE WHEN ELEVATION OF SOUTH CHANNEL IS 123·02 FEET.

Elevation at Section.....	123·02 ft.
“ November 24th, 1882.....	98·75 “

Increase of height..... 24·27 “

Difference of level between section line and surface of water  
at Laprairie, November 24th, 1882..... = 9·85 ft.

Hence if we call  $y$  the height of the amplitude at Laprairie above the surface of the river there, before the rising of the water, we get per St. Guilheim's Theorem.

$$(24·27)^3 \\ (24·27)^5 + 0·1355 (9·85)^6 + (9·85)^3 = (y + 9·85)^3$$

The resolution of this equation gives  $y = 14·90$  ft.

Hence elevation at Laprairie =  $108·60 + 14·90 = 123·50$  ft. This will be the elevation of the water above datum at Laprairie during ordinary years while the ice is shoving.

The elevation of John street in front of Poissant's Hotel, Laprairie, is 121·88 ft.

## NOTE G (1)

CONDITION OF BOTH CHANNELS WHILE THE ICE WAS SHOWING IN THE YEAR 1869.

Elevation of water at sill of lock.....	121·41 ft.
Difference of elevation at high water between water on sill and water at section, St. Mary's Current.....	1·59 “

Elevation at St. Mary's Current..... 119 82 “

During high water, the elevations at the sections in St. Mary's Current and South Channel, are found to be equal. Hence elevation at South Channel is..... = 119 82 ft.

This was the maximum spring elevation in the year 1869, at these localities, which caused the shoving of the ice.

Let us now investigate the lemma of finding the discharges through both channels when the river was at this elevation.

St. Mary's Current (see section):—

Sectional area.....	109,841 sq. ft.
Wetted perimeter.....	2,594 ft.
Water line.....	2,545 ft.
Hydraulic depth.....	42·34 ft.
Mean depth.....	43·16 “

South Channel (see section):—

Sectional area.....	60,239 sq. ft.
Wetted perimeter.....	3,611 ft.
Water line.....	3,610 “
Water line when works are built.....	3,000 “
Hydraulic depth.....	18·06 ft.
Mean depth.....	18 06 “
Hydraulic depth (works being built).....	21·74 “
Mean depth, do.....	21·74 “

## NOTE G (2)

DISCHARGES THROUGH BOTH CHANNELS DURING FLOOD OF 1869, ELEVATION BEING 119.82 FEET.

*St. Mary's Current.*

Admitting the river to be open when elevation was at 119.82 we get per notes

A and G  $\sqrt{29.33} : \sqrt{42.34} :: 5.65 : x = 6.78$  ft. per sec.

This would be the velocity if river were open and elevation at 119.82 ft.

But being covered with ice this velocity becomes  $\frac{6.78}{2} = 3.39$  ft. p. sec.

Hence Note G (1) Discharge  $= 109,841 \times 3.39 = 372,361$  cub. ft. p. sec.

*South Channel.*

Admitting as above, the river to be open when its elevation was at 119.82 we get notes B. and G.

$\sqrt{1.76} : \sqrt{18.06} :: 3.65 : 11.69 =$  velocity under such circumstances.

But being covered with ice this becomes  $\frac{11.69}{2} = 5.84$ .

Hence discharge  $= 65,239 \times 5.84 = 380,996$  cub. ft. p. sec.

Entire discharge of river will therefore be  $372,361 + 380,996 = 753,357$  cub. ft. p. second.

There being no navigation at that season, the discharge from the canal may be neglected for all practical purposes.

## NOTE G (3)

ELEVATION OF RIVER DURING THE FLOOD OF THE YEAR 1869, IF ALL THE WATER WERE MADE TO PASS THROUGH THE SOUTH CHANNEL AND LEVEES BUILT CONFINING IT TO A WIDTH OF 3,000 FEET.

It will be seen in Note G (1) that on the 22nd of April, 1869, the South Channel being 3,000 feet wide had a mean depth of 21.74 feet and its discharge was 380,996 cubic feet per second.

Let  $x$  = mean depth of South Channel when entire river, or 753,357 cubic feet per second is flowing through it,

Then we have

$$(380,996)^{\frac{2}{3}} : (753,357)^{\frac{2}{3}} :: 21.74 : x$$

Whence  $x = 34.24$  feet.

Then Note B (3) we get

$$98.75 - 1.56 + 34.24 = 131.43 \text{ ft.}$$

From this it appears that the elevation of the water in the South Channel on the 22nd April, 1869, would be 131.43 feet above datum if the proposed scheme were then in existence and the sluices all closed in the proposed embankment.

## DOMINION CANALS.

REGISTER of the Direction of the Wind, and of the Depth of Water on the Lower Sill of Lock No. 1 on the Lachine Canal, taken by the Lockmaster every day at noon, for the months of January, February, March and April, 1882.

JANUARY.				FEBRUARY.				MARCH.				APRIL.			
Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.
	Fect.	Ins.			Fect.	Ins.			Fect.	Ins.			Fect.	Ins.	
1	16	9	W.	1	32	0	N.E.	1	29	1	S.W.	1	31	0	S.W.
2	17	0	W.	2	32	3	W.	2	30	0	N.W.	2	32	0	N.E.
3	17	3	N.E.	3	32	6	N.W.	3	30	7	N.W.	3	29	1	N.E.
4	18	6	W.	4	30	9	N.E.	4	30	10	N.E.	4	28	9	W.
5	19	3	E.	5	30	3	N.E.	5	30	11	N.E.	5	25	9	N.E.
6	21	0	N.E.	6	30	4	N.W.	6	30	7	N.E.	6	24	5	N.E.
7	22	3	W.	7	30	1	N.E.	7	30	4	N.E.	7	23	6	W.
8	23	1	S.W.	8	30	3	N.W.	8	29	6	W.	8	23	5	N.E.
9	23	8	W.	9	30	3	N.E.	9	29	5	N.E.	9	23	1	N.E.
10	22	4	W.	10	30	10	N.E.	10	29	5	N.E.	10	22	3	S.E.
11	22	4	N.E.	11	30	2	S.W.	11	28	10	W.	11	21	3	N.W.
12	23	8	N.W.	12	30	2	S.W.	12	28	9	S.W.	12	20	6	W.
13	23	8	N.E.	13	30	7	S.W.	13	28	7	N.	13	20	3	N.W.
14	24	3	W.	14	30	5	N.W.	14	27	10	N.W.	14	19	11	N.W.
15	24	6	W.	15	30	6	S.W.	15	27	11	S.W.	15	19	8	N.W.
16	24	10	W.	16	30	7	S.W.	16	27	10	N.E.	16	19	6	N.W.
17	25	4	W.	17	30	8	N.	17	27	5	N.E.	17	19	5	N.W.
18	25	8	S.W.	18	29	1	N.E.	18	27	1	E.	18	19	4	N.E.
19	26	6	N.E.	19	28	7	E.	19	27	8	N.W.	19	19	7	S.E.
20	27	9	N.E.	20	28	2	E.	20	27	8	N.W.	20	19	11	N.E.
21	27	9	N.E.	21	28	3	E.	21	27	6	N.E.	21	20	6	N.E.
22	29	2	W.	22	28	1	N.E.	22	27	4	N.E.	22	20	6	N.
23	31	6	W.	23	28	3	N.E.	23	27	9	W.	23	20	7	N.E.
24	33	9	W.	24	28	10	N.E.	24	27	9	W.	24	20	5	N.E.
25	33	8	N.E.	25	28	10	S.W.	25	27	3	W.	25	20	8	W.
26	32	11	S.W.	26	28	10	S.W.	26	27	7	S.W.	26	20	4	E.
27	33	10	N.W.	27	29	5	N.E.	27	27	5	S.W.	27	20	4	N.E.
28	32	8	N.E.	28	29	3	S.E.	28	27	8	W.	28	20	2	S.E.
29	32	5	N.W.					29	28	1	S.W.	29	20	1	S.
30	31	10	N.W.					30	29	2	N.W.	30	20	2	S.
31	32	8	W.					31	31	3	N.W.				

P. FITZPATRICK,  
Lockmaster.

DOMINION CANALS—*Continued.*

REGISTER of the Direction of the Wind, and of the Depth of Water on the Lower Sill of Lock No. 1 on the Lachine Canal, taken by the Lock master every day at noon, for the months of May, June, July and August, 1882.

MAY.				JUNE.				JULY.				AUGUST.			
Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.
	Feet.	Ins.			Feet.	Ins.			Feet.	Ins.			Feet.	Ins.	
1	20	2	W.	1	22	11	W.	1	21	8	E.	1	19	8	E.
2	20	5	N.W.	2	22	10	S.W.	2	21	7	N.W.	2	19	7	S.E.
3	20	4	W.	3	23	1	W.	3	21	9	W.	3	19	7	N.E.
4	20	5	N.W.	4	23	3	W.	4	21	8	E.	4	19	4	W.
5	20	5	E.	5	23	5	W.	5	21	9	N.W.	5	19	3	W.
6	20	4	S.W.	6	23	6	S.W.	6	21	9	N.	6	19	2	W.
7	20	3	S.W.	7	23	5	S.W.	7	21	6	W.	7	19	2	S.W.
8	20	2	S.E.	8	23	5	S.W.	8	21	5	W.	8	19	0	East.
9	20	4	N.E.	9	23	4	N.W.	9	21	3	S.W.	9	19	1	W.
10	20	4	N.E.	10	23	4	S.W.	10	21	2	S.	10	19	0	N.E.
11	20	7	S.W.	11	23	2	N.W.	11	21	0	S.W.	11	19	0	S.W.
12	20	6	S.E.	12	22	11	N.	12	20	10	W.	12	18	10	S.W.
13	20	6	S.	13	22	10	S.W.	13	20	11	S.W.	13	18	11	West.
14	20	8	N.E.	14	22	7	S.	14	20	10	W.	14	18	10	S.
15	21	3	N.E.	15	22	6	S.W.	15	20	7	W.	15	18	11	N.W.
16	21	3	S.W.	16	22	4	N.E.	16	20	6	S.	16	19	0	N.W.
17	21	5	N.E.	17	22	4	N.	17	20	4	S.	17	18	11	W.
18	21	7	E.	18	22	3	N.W.	18	20	2	S.	18	19	1	W.
19	21	6	E.	19	22	4	W.	19	20	3	S.W.	19	19	1	N.W.
20	21	7	S.E.	20	22	3	W.	20	20	1	W.	20	19	2	N.E.
21	21	8	N.E.	21	22	3	S.W.	21	20	0	W.	21	19	1	W.
22	21	8	N.E.	22	22	2	S.	22	19	11	S.W.	22	19	2	N.W.
23	22	0	S.E.	23	22	1	S.W.	23	19	9	W.	23	19	2	S.W.
24	22	1	N.W.	24	22	1	S.E.	24	19	8	S.W.	24	19	3	W.
25	22	3	E.	25	21	11	W.	25	19	6	S.W.	25	19	3	N.E.
26	22	2	W.	26	21	11	S.W.	26	19	6	S.W.	26	19	3	E.
27	22	6	W.	27	21	11	N.W.	27	19	7	N.E.	27	19	2	N.E.
28	22	9	N.E.	28	21	11	N.W.	28	19	7	E.	28	19	1	E.
29	22	8	N.	29	21	11	N.W.	29	19	8	N.E.	29	19	0	N.E.
30	22	7	W.	30	21	8	S.W.	30	19	8	E.	30	19	0	N.W.
31	22	9	S.					31	19	9	N.E.	31	18	11	S.W.

PATRICK FITZPATRICK,  
*Lockmaster.*

DOMINION CANALS.—*Continued.*

REGISTER of the Direction of the Wind, and of the Depth of Water on the Lower Sill of Lock No. 1 on the Lachine Canal, taken by the Lockmaster every day at noon, for the month of September, October, November and December, 1882.

SEPTEMBER.				OCTOBER.				NOVEMBER.				DECEMBER.			
Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.	Days of the month.	Depth of water.		Direction of Wind.
	Feet.	Ins.			Feet.	Ins.			Feet.	Ins.			Feet.	Ins.	
1	19	0	S.W.	1	18	7	N.W.	1	17	3	W.	1	16	11	W.
2	18	11	E.	2	18	8	N.W.	2	17	2	W.	2	16	11	N.E.
3	18	10	W.	3	18	5	W.	3	17	2	S.W.	3	16	10	N.E.
4	18	10	S.W.	4	18	1	W.	4	17	3	E.	4	16	7	N.E.
5	18	11	N.E.	5	18	0	N.E.	5	17	1	N.E.	5	16	6	S.W.
6	18	9	N.E.	6	17	10	N.E.	6	17	11	N.E.	6	16	6	W.
7	18	7	W.	7	17	10	N.W.	7	16	9	S.	7	16	7	S.W.
8	18	7	N.E.	8	17	6	S.W.	8	16	10	N.E.	8	16	9	W.
9	18	6	N.E.	9	17	6	W.	9	16	10	W.	9	16	11	S.W.
10	18	5	N.W.	10	17	7	S.E.	10	16	11	N.E.	10	17	6	N.E.
11	18	6	N.E.	11	17	6	W.	11	17	0	S.	11	18	1	N.E.
12	18	6	W.	12	17	6	S.E.	12	17	1	N.E.	12	18	5	N.E.
13	18	3	S.W.	13	17	5	S.	13	17	2	N.E.	13	18	7	S.W.
14	18	0	S.	14	17	5	W.	14	17	3	N.W.	14	19	1	S.E.
15	18	3	N.W.	15	17	7	W.	15	17	4	N.W.	15	20	0	W.
16	18	4	W.	16	17	8	N.E.	16	17	5	W.	16	21	2	W.
17	18	3	W.	17	17	7	W.	17	17	6	N.E.	17	22	3	W.
18	18	2	N.E.	18	17	6	W.	18	17	6	N.E.	18	23	1	W.
19	18	1	N.E.	19	17	5	N.E.	19	17	7	N.W.	19	24	5	W.
20	18	5	N.E.	20	17	5	N.	20	17	6	N.W.	20	26	0	E.
21	18	5	N.E.	21	17	3	W.	21	17	4	W.	21	27	3	N.E.
22	18	4	S.	22	17	1	S.	22	17	6	N.E.	22	28	1	N.E.
23	18	6	S.	23	17	1	S.W.	23	17	4	W.	23	30	2	W.
24	18	7	W.	24	17	3	W.	24	17	6	W.	24	30	0	W.
25	18	7	N.E.	25	17	3	W.	25	17	7	S.W.	25	29	3	N.W.
26	18	7	N.E.	26	17	3	W.	26	17	8	W.	26	28	4	E.
27	18	8	E.	27	17	2	W.	27	17	5	W.	27	28	11	N.
28	18	7	E.	28	17	3	E.	28	17	4	W.	28	28	6	W.
29	18	8	N.E.	29	17	1	S.W.	29	17	1	N.W.	29	28	9	W.
30	18	9	N.E.	30	17	2	S.W.	30	17	.....	W.	30	29	1	W.
				31	17	2	S.W.					31	28	9	W.

F. FITZPATRICK,  
*Lockmaster.*

## PORT OF MONTREAL.

MEMORANDUM TAKEN FROM THE HARBOUR MASTER'S REPORTS, GIVING THE DATES OF THE OPENING AND CLOSING OF NAVIGATION FROM 1864 TO DEC. 31ST, 1881.

- 1864.—The ice in the harbour began to break and move on the 7th of April; on the 13th, river was clear. Close of navigation, Dec. 10th.
- 1865.—On the 1st of January the water gradually rose, on the 14th the ice shoved, on the 15th the ice remained stationary.
- 1866.—Opening of navigation, April 19th. On the 5th January, 1866, the river was full of ice; on the 6th the ice became stationary.
- 1867.—On the 1st January the water was level with the wharves, ice forming fast; on the 9th ice became stationary. The first shove of the ice took place on the 14th April; on 22nd the harbour was clear of ice.
- 1868.—The winter was unusually cold, the river was frozen at an early date; teams crossed on the 16th December, 1867. On the 19th March, 1868, ice shoved; on the 4th April the ice shoved heavily opposite the city; on the 14th and 15th the ice kept moving, on the 17th the harbour was clear.
- 1869.—Dec. 28th, the river was frozen over early; on this date the first team crossed to St. Lambert. In the beginning of 1869 the ice was considered firm for the winter. On the 13th April the ice shoved, on the 18th shoved again, on the 19th it shoved, flooding Griffintown, which continued until the 23rd; at 10 a.m. ice below gave way, on 25th the harbour clear of ice.
- 1870.—On the 1st January channel opposite city free of ice; on the 8th crossed on foot; on 9th ice shoved, no crossing until 13th, teams crossed on the 15th; on the 17th thaw set in, which lasted some time. On 31st March the ice opposite the city was bad; the first shove on the 9th April; shoved on 10th and 11th; on the 17th harbour clear of ice.
- 1871.—On the 4th January river frozen over; on 6th became mild, ice shoved; on 11th teams crossing. On 15th March a slight shove, 17th shoved again; on 31st last crossing; 3rd April the ice kept moving, on 10th harbour clear.
- 1872.—When the year commenced the river was frozen and teams crossing. On April 18th first shove, on 28th harbour clear, on 1st May vessels arrived in port.
- 1873.—On the 1st January the river was frozen over and ice stationary, teams crossing. On 11th April the ice shoved, and continued to do so daily until the 21st, when it gave way; on 25th Str. "William" arrived from Sorel.
- 1874.—On 17th January the river was frozen over, on 21st teams crossed from Longueuil. April 18th first shove, on 23rd harbour free from ice, 25th a number of small craft arrived in port. The ice bridge at Cape Rouge held firm until the 9th of May.
- 1875.—On the 1st January the river opposite the city was full of ice, teams crossed below Hochelaga on the last day of the year 1874; on 4th January, 1875, ice became stationary. The winter was the coldest that had been experienced for many years. The first ice shoved on the 24th April, on 29th harbour clear; on the 1st May a may-pole was placed on the ice opposite Longueuil; on 3rd river vessels arrived from Boucherville, on the 7th ice bridge at Cape Rouge gave way. On the 5th December ice became stationary; on 21st teams crossed to the city, the earliest on record.
- 1876.—When January commenced the river was frozen and ice good. On April 12th ice got bad, on 16th first shove, and shoved daily until 26th; on 27th several vessels arrived from Boucherville. On 19th December the ice was good, persons crossing on foot, 23rd teams crossing.
- 1877.—When the year commenced the river was frozen over. The weather in April was fine and mild; on the 5th the ice began to get bad, on the 8th the first shove

- and moved downwards, on the 14th the channel was clear as far as Hochelaga, on the 17th the tug "Francis" arrived from Boucherville. The weather was mild this fall, the navigation was still open on the 31st of December.
- 1878.—On the 1st of January the Longueuil Ferry, still running, in the afternoon left the harbour with a party on a pleasure excursion to Boucherville; on the 17th people crossed the ice on foot, on 24th good crossing. The 7th of January was the coldest day of the winter, at 8 a.m. 15° below zero. On the 1st of February roads were made; on the 18th a road was made to Laprairie, and on the last day of the month these roads were considered unsafe. March 1st, cold snap; on the 2nd teams again crossed to St. Lambert and Laprairie, on the 12th again abandoned, on the 16th first open water, on 18th first shove of ice, on 22nd channel clear as far as Point-aux-Trembles, on the 29th the steamer "Montarville" came into the harbour but had to return to Boucherville, on the 29th tug "St. Francis," arrived in port. On the last day of the year the river was full of drift ice.
- 1879.—On the first day of January the weather was fine, in the afternoon a boat's crew descended the Lachine Rapids in safety; on the 25th the river was full of ice; on 26th teams crossed at Longueuil; on the 1st February a road was made from St. Lambert; on the 13th February a road was made from Laprairie. On the 12th April the ice shoved; after the 15th the ice kept daily moving downwards; on the 18th the ice became so closely packed and stationary that the people crossed on foot; on 23rd steamer "St. Lambert" arrived in port from Boucherville. On the 22nd December it was very cold, 22° below zero; on the 25th river full of ice; on 27th crossing on foot, teams crossing at Longueuil.
- 1880.—On the 1st January weather fine, at 8 a.m., 4° below zero, river opposite city full of ice, teams crossing below Longueuil; on the 2nd crossing on foot to St. Lambert; on the 13th commenced laying a railroad track on the ice from Hochelaga to Longueuil, completed on the 30th; on the following day the road was opened. On the 1st of April ice began to get bad, on the same day a commencement was made to remove the ice bridge railroad; April 5th first shove of the ice; on the 6th ice shoved again; on 7th a very heavy shove on Island Mouton, it was piled up 44 feet, the water in the harbour at that time was 17 feet above summer level; on the 13th a large quantity of ice left the harbour; on the 17th the river craft arrived from Boucherville; on the 29th April the ice bridge at Cape Rouge gave way. On the 3rd December the river was full of ice, Longueuil ferry left for winter quarters; on the 29th roads were commenced on the ice to St. Lambert.
- 1881.—The new year commenced with fine weather. On the 5th railway cars commenced crossing at Longueuil. On the 8th April the ice commenced breaking up; 13th, channel opposite city clear; on 19th, tug "C. W. Francis" arrived in port, being the first arrival of the season; on the 27th, SS. "Peruvian" arrived from Sorel where she had wintered. Dec. 31st, fine mild weather; the year closed with open navigation, the *Longueuil* making regular trips.

THOMAS HOWARD,  
*Harbour Mas'er.*

APPENDIX No. II.

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**REPORT ON THE SAGUENAY DISTRICT SLIDE AND BOOMS,**

FOR FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

**HENRY F. PERLEY, Chief Engineer**

AND

**JOSEPH ROSA, Superintendent.**

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## APPENDIX No. II

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### SLIDE, BOOMS, &c.—SAGUENAY DISTRICT.

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Ref. No. 39,995.

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 30th October, 1883.

SIR,—Herewith I transmit a report by Mr. Joseph Rosa, Assistant Engineer, relative to the Saguenay Slide for the fiscal year ended 30th June last.

I have the honour to be Sir,  
Your obedient servant,

HENRY F PERLEY.  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Department Public Works.

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QUEBEC, 9th October, 1883.

SIR,—I have the honour to submit to you my report on the Saguenay Slide for the year 1882-83.

During the year which ended 30th June last 1,000 feet in length of the slide, on an average of 15 feet in height, have been reconstructed, which make in all 2,239 feet built in new since 1881. There is yet 2,790 feet in length to do, of which about 1,000 will be done during the present season. Repairs have also been made to the house of the Superintendent, as well as to the booms and dams, and to that part of the slide which has not yet been reconstructed.

Dam No. 1 which was built in 1860, will have to be rebuilt during the present fiscal year. This dam is 128 feet long, 18 feet high, and the slope will be 32 feet long.

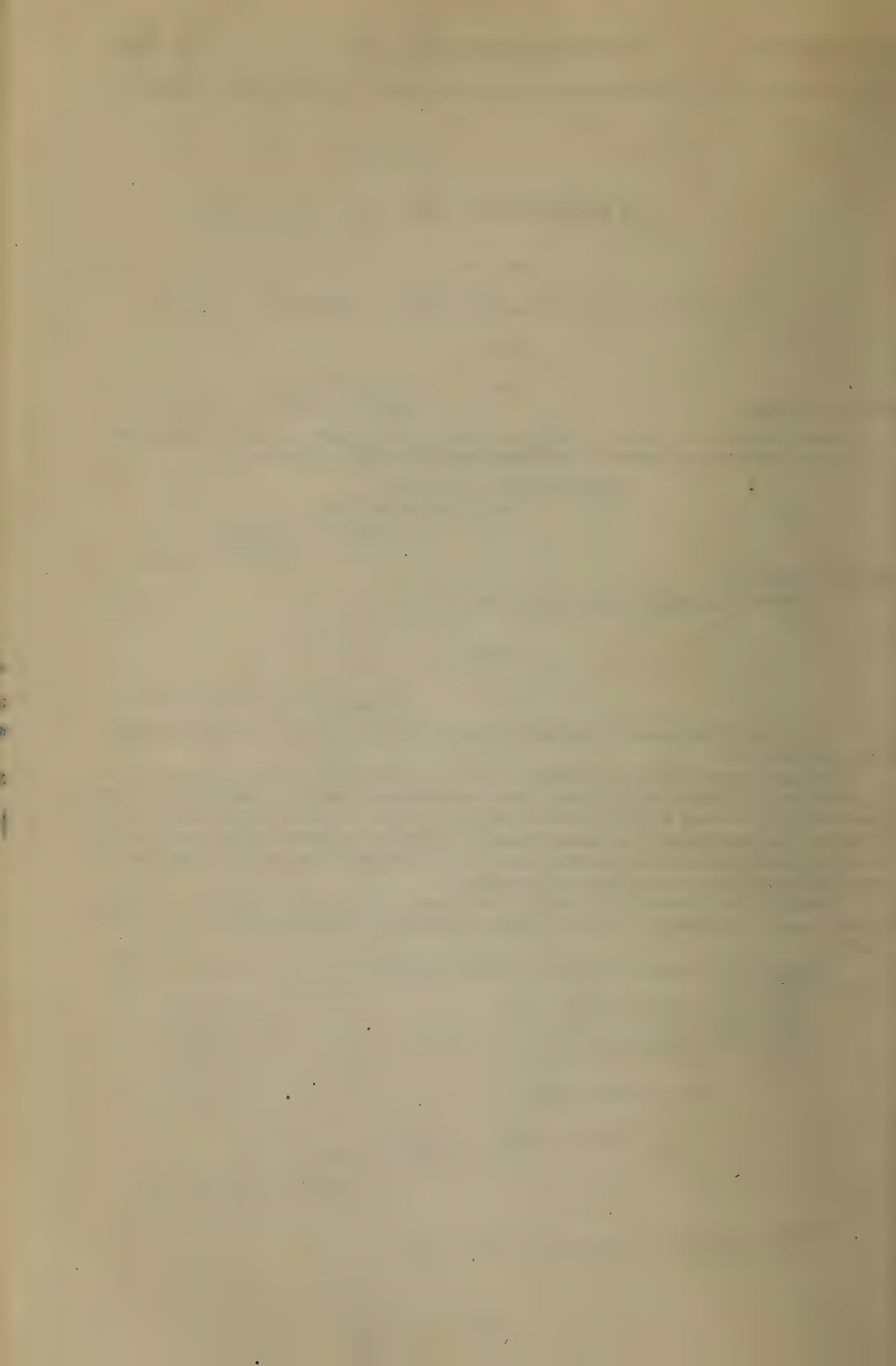
The quantity of logs, &c., passing through the slide during the fiscal year 1882-83 was as follows:—

Red spruce sleepers, 9 feet long.....	11,000
Pine logs.....	1,500
Spruce logs, 12 to 25 feet long.....	33,283
 Total pieces or logs.....	 <u>45,783</u>

I have the honour to be, Sir,  
Your obedient servant,

JOSEPH ROSA,  
*Superintendent.*

H. F. PERLEY, Esq.  
Chief Engineer, Department Public Works.



APPENDIX No. 12.

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**REPORT ON THE ST. MAURICE DISTRICT  
SLIDES AND BOOMS,**

FOR FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

**HENRY F. PERLEY, Chief Engineer**

AND

**CHARLES LAJOIE, Superintendent.**

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## APPENDIX No. 12

### SLIDES AND BOOMS—ST. MAURICE DISTRICT.

Ref. No. 38,766.

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 28th September, 1883.

SIR,—Herewith I transmit a report by Mr. C. Lajoie, Superintendent of the St. Maurice Works, on the works under his charge, for the fiscal year ended 30th June last.

I have the honour to be, Sir,  
Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Department Public Works.

(Translation.)

OFFICE ST. MAURICE WORKS,  
THREE RIVERS, 30th July, 1883.

SIR,—I beg to transmit to you, for the information of the Hon. the Minister of Public Works, my report on the works entrusted to my supervision for the year ended on the 30th June last.

The waters of the St. Maurice have been and still are very high. The work of floating timber has nevertheless been successfully carried out, and over 400,000 logs entered the booms. No accident of importance has occurred and no timber has been lost. Notwithstanding the enormous pressure the booms have had to bear only two small snubbing piers at the mouth of the St. Maurice gave way and were swept into the stream.

Wages have been so high that it has been impossible to carry on the works with the amount voted at the session of 1881-82, even with the utmost economy. The sum voted was \$14,500, and the amount expended is \$15,260.92, being an increase of \$760.92, but a reduction of \$1,311.28 on the previous year.

The amount voted at the same session for repairs was \$7,500, and the amount authorized \$4,561.44, out of which there has been expended \$1,183.08, leaving a balance of \$3,316.92 on the amount voted, and \$378.36 on the amount authorized, which has not been expended and which is about sufficient to complete certain works which the high water rendered it impossible to finish.

The repairs at the several stations have been as follows :—

#### MOUTH OF THE ST. MAURICE.

Constructed four small snubbing piers.

#### CAPE CORNEILLE.

Constructed two snubbing piers.

do one scow.

## LES PRÈS.

Constructed two snubbing piers 14 x 14 x 6.  
Cut, bored and bolted, 50 pieces of single boom.

## SHAWENEGAN.

Constructed 760 pieces of boom 4 feet x 13 inches.  
do 1 crib dam.  
Filled with stone the space in the piers at end of slide.  
Constructed 8 boom heads.  
Blasting and repairs.  
Repaired piers Nos. 9 and 11.  
Cut and bored forty pieces of single boom.

## GRAND MÈRE.

Constructed 200 pieces of booms 3 feet x 13 inches.  
do 1 scow  
Respectfully submitting the foregoing,

I have the honour to be, Sir,  
Your obedient servant,

CHARLES LAJOIE,

*Superintendent St. Maurice Works.*

H. F. PERLEY, Esq.,

Chief Engineer, Department Public Works.

APPENDIX No. 13.

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REPORT ON THE OTTAWA DISTRICT  
**SLIDES AND BOOMS,**

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

**HENRY F. PERLEY, Chief Engineer**

AND

**Geo. P. BROPHY, Superintendent.**

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## APPENDIX No. 13.

## SLIDES AND BOOMS—OTTAWA DISTRICT.

CHIEF ENGINEER'S OFFICE,

Ref. No. 38,765.

OTTAWA, 28th September, 1883.

SIR,—Herewith I transmit the Annual Report by Mr. George P. Brophy, Superintending Engineer, on the works under his charge on the Ottawa River and its tributaries, for the fiscal year ended 30th June last.

I have the honour to be, Sir,  
Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.,  
Secretary, Department Public Works.

OTTAWA RIVER WORKS OFFICE,

OTTAWA, 31st July, 1883.

SIR,—I have the honour to submit to the Department, the following report on the state of the works under my charge, on the Ottawa River and tributaries, for the fiscal year ended 30th June last.

The height of water which prevailed during the summer and autumn months of 1882 was favourable for the driving of timber and logs, and as a general thing the rafts and drives reached their destinations earlier than usual.

After the timber-running season, the works at the various stations were examined and at places where the foundations had to be overhauled before the formation of the ice, advantage was taken of the comparatively low stages of the water during the months of September and October, to make good such defects as were only then accessible.

During the winter of 1882-83 and the early spring months, works of repairs were executed at the following stations on the Ottawa River, viz :—Hull, Ottawa, or South Chaudiere; Chats's Head of Chat's Rapids, Cheneaux, Portage du Fort, Mount, Calumet and Joachim; and on the tributaries the Gatineau, Madawaska, Coulonge, Black, Petawawa and Dumoine Rivers. At the Calumet and Black River slides, the repairs were quite extensive, as well as at the Ragged Chute, on the upper Madawaska. The snubbing piers at the head of the Chat's Rapids, which were built about twenty-five years ago, and had been wrecked and damaged by the shoving of ice, were re-constructed and repaired. On the lower reach of the Petawawa the slides and dams, after being in use for fully a quarter of a century, had become leaky, and were stanch and were otherwise improved and strengthened.

The wires and cables of the Union Suspension Bridge were thoroughly examined and strengthened by the substitution of new materials where any symptoms of decay manifested themselves. The repairs were all executed in due time, and the works at the various stations were ready for last spring's business.

A sand bar in the Ottawa River, in the channel below the village of Portage du Fort, was partially removed by dredging, but operations had to be suspended on account of the rising of the water. The work, so far as completed, had a beneficial effect on steamboat navigation between the place indicated and the Sand Point and Bristol wharves.

Last spring the ice on the upper streams and lakes was late in breaking up, so that the usual freshets in the creeks feeding the tributaries and main stream, did not afford a means of outlet for the timber and logs in the remote districts until the season was pretty well advanced; but when the general breakup occurred, the resultant floods, swollen by copious rainfalls on most of the streams, yielded a pitch of water well maintained for driving purposes on the more important tributaries, until the end of the period covered by this report. The bulk of the timber and logs, therefore reached the retaining booms in the main river without delay, and although a very large amount of business was done at the different stations, it is satisfactory to know that the Government works—notwithstanding that some of them have been long in use and have been patched year after year—met the requirements of the lumbermen as well as could reasonably have been expected; but of course the great tear and wear to which they were subjected by the descent of such large bodies of timber and logs will necessitate the execution of extensive repairs at a number of stations during the autumn and winter months.

The works at the principal stations on the main Ottawa River, when they were built about forty years ago, were well adapted for the descent of timber that then passed during the spring or early summer months; but now that the operations of the lumbermen have been extended to the Kippewa and Temiscamingue districts, and to the more distant limits on the tributaries, the products of the forests do not reach the lower stations until late in the season; and, consequently, at much lower stages of the water than the works were designed for. When opportunity offers, the slide bottoms should be lowered and the approaches and outlets deepened in order that the late rafts may not be delayed in their passage; and as this is a question of vital importance to those engaged in the great staple trade of the Ottawa, it is extremely desirable that steps may be taken, as early as possible, to have so desirable an improvement consummated.

All of which is respectfully submitted.

GEORGE P. BROPHY,  
*Superintending Engineer.*

HENRY F. PERLEY, Esq.,  
Chief Engineer, Department Public Works.

STATEMENT of Expenditure for Repairs and construction of works on the Ottawa River and tributaries for the Fiscal Year ended 30th June, 1883.

Name of			Letter of Authority.		Expenditure authorized.	Liabilities incurred from 1st July, 1882, to 30th June, 1883.		Remarks.
Work.	Province.	Electoral Division.	No.	Date.		\$	cts.	
Union Suspension Bridge, Ottawa. ....	Ontario and Quebec.	City of Ottawa and County of Ottawa ...				397 01	Repairs.	
Slide at Hull Station, Ottawa River. ....	Quebec. ....	County of Ottawa. ....				25 84	do	
do South Chaudière, Ottawa River. ....	Ontario	City of Ottawa. ....				56 29	do	
do Chats Station do	do	North Riding of Lanark				286 10	do	
Booms and piers at Cheneaux do	do	South Rid'g of Renfrew				879 35	do	
Slide at Mountain do	Quebec. ....	County of Pontiac. ....	2,686	17th Sept., 1881	20,000 00	430 09	do	
do Calumet do	do	do				316 78	do	
Booms and piers, mouth of Madawaska River.	Ontario	South Rid'g of Renfrew				1,149 07	do	
do Slide at High Falls, Coulonge River	Quebec. ....	County of Pontiac. ....				1,180 00	do	
do do Black River. ....	do	do				531 96	do	
Lower Slides, Petewawa River. ....	Ontario	North Rid'g of Renfrew			3,735 00	169 09	do	Construction.
Dredging near Portage du Fort, Ottawa River	Quebec. ....	County of Pontiac. ....				2,945 05	do	
Slides, &c., Ragged Chute and High Falls, Madawaska. ....	Ontario	County of Pontiac. ....						
Union Suspension Bridge, Ottawa. ....	Ontario and Quebec.	South Rid'g of Renfrew	2,454	10th Oct., 1881	7,500 00	2,882 76	Repairs.	
Slide at South Chaudière, Ottawa River. ....	Ontario	City of Ottawa and County of Ottawa ...				706 35	do	
do Hull Station do	Quebec. ....	City of Ottawa. ....				725 18	do	
do Chats do	Ontario	North Riding of Lanark				536 13	do	
Piers, Head Chats Rapids do	Ontario and Quebec.	North Riding of Lanark & County of Pontiac				845 00	do	
Booms, &c., at Cheneaux Station do	Ontario	South Rid'g of Renfrew				696 05	do	
Slide at Portage du Fort do	do	do				1,214 90	do	
do Mountain do	Quebec. ....	County of Pontiac. ....	4,860	1st Aug., 1882	20,000 00	227 89	do	
do Calumet do	do	do				688 68	do	
do Joachim do	do	do				2,289 64	do	
Booms, &c., near mouth of Gatineau River. ....	do	County of Ottawa. ....				266 30	do	
Works on upper and lower reaches, Madawaska. ....	do	do				324 92	do	
Slide at High Falls, Coulonge River. ....	Ontario	South Rid'g of Renfrew				2,226 28	do	
do Black River. ....	Quebec. ....	County of Pontiac. ....				834 45	do	
Works, Lower reach, Petewawa	Ontario	North Rid'g of Renfrew				2,798 78	do	
Slide at High Falls, Dumoine River. ....	Quebec. ....	County of Pontiac. ....				1,374 40	do	
						615 63	do	

STATEMENT of Expenditure for Repairs and construction of works on the Ottawa River and tributaries, for the Fiscal Year ended 30th June, 1883.

Name of			Letter of Authority.		Expenditure authorized.	Remarks.
Work.	Province.	Electoral Division.	No.	Date.		
Piers at Head of Chats Rapids, Ottawa River.	Ontario and Quebec.	North Riding of Lanark & County of Pontiac.	4,869	2nd Aug., 1882	\$ cis. 2,018 57 1,772 61 1,199 31 \$31,610 51	Re-construction. do do
Slide at Calumet Station, Ottawa River.	Quebec.	County of Pontiac.				
do High Falls do Black River.	do	do				
Total						

D. SCOTT,  
Accountant, Ottawa River Works.

OTTAWA, 31st July, 1883.

APPENDIX No 14.

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# REPORT

ON THE

## NEWCASTLE DISTRICT SLIDES AND BOOMS.

DURING FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

HENRY F. PERLEY, Chief Engineer,

AND

THOMAS D. BELCHER, Superintendent.

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REPORT

OF THE

COMMISSIONERS OF THE

LAND OFFICE

FOR THE YEAR 1891

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## APPENDIX No. 14.

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### SLIDES AND BOOMS—NEWCASTLE DISTRICT.

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(Ref. No. 38,764.)

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 28th September, 1883.

SIR,—Herewith I transmit the Annual Report of Mr. Thomas D. Belcher, Superintending Engineer, on the works under his charge in the Newcastle District, for the fiscal year ended 30th June last.

I have the honour to be, Sir,  
Your obedient servant,

HENRY F. PERLEY,  
*Chief Engineer.*

F. H. ENNIS, Esq.  
Secretary, Department Public Works.

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TRENT CANAL WORKS,  
SLIDES AND BOOMS DIVISION,  
ENGINEER'S OFFICE, PETERBOROUGH, 27th September, 1883.

SIR,—I have the honour to submit the Annual Report on the works under my charge, for the fiscal year ended 30th June, 1883.

The works embraced on the "Trent Navigation System" are divided as follows:

1. All such works as are exclusively connected with the descent of timber, &c., such as dams, slides, booms and piers.
2. All works of improvement to the rivers and lakes between the several canals, such as dredging or removing boulders, &c.
3. All canals, dams, locks, swing bridges, buildings and works in connection therewith, erected exclusively for the benefit of steamboat navigation.

Previous to the year 1879, the three classes were under the charge of the Department of Public Works, but since that year when the Act providing for the division of the Department into two Departments came into force, the works embraced in class one and two were apportioned to the Department of Public Works, and those embraced in class three to the Department of Railways and Canals.

From July 1st to the closing of navigation the water stood at a good navigable height, the gauges reaching an average of 1.75 feet higher than the corresponding period of the last fiscal year; during the winter months it remained steady, but commenced to rise about the 3rd of April, and continued to increase until 23rd April, when it attained its greatest height, the highest gauge registering 25 feet above ordinary spring height; preparation was made for the descent of this freshet, by opening up every possible water way, and the greatest attention and watchfulness was demanded from the officers at the several stations, who performed their duties faithfully to the Department and with credit to themselves; and although there were several private dams, and a number of saw logs and two mills swept away, none of the Government works under the charge of this Department suffered

damage to any great extent. The water was never known to attain such a height throughout this district except in the spring of 1870, when all the heavy works on the River Trent were destroyed, and the running of square timber in cribs put an end to.

The total quantity of timber that passed through the several slides on the waters during the past year is as follows, viz. :—

Saw-logs.....	606,532
Boom timber pieces.....	9,632
Square do .....	7,296
Cedar.....	182,272

Having described the nature and dimensions of the works in previous reports, I shall proceed to lay before you for the information of the Honorable the Minister, as briefly as possible a description of the repairs and improvements executed during the past year at the following stations.

#### FENELON FALLS.

The piers and booms constructed here in 1874, dividing the steamboat channel from the timber channel, have not been used during the past year, and have been drawn out of position. The locks in course of construction will, it is contemplated, be completed next year, when it will be necessary to place this boom in its original position, and enforce the rules and regulations relating to the river; some new anchors will be required, and the boom which is 3,090 feet in length must receive a general overhauling.

The slide was replanked and the river wall made new its entire length. The description of timber used was tamarac, 12 inches square. The inner or south wall which acts as retaining wall for the mill pond of the adjoining saw mill, is in a dilapidated condition, and should it give out during the running season, it would obstruct the passage of timber and damage the slide; it will be necessary, therefore, to notify the mill owners to renew this retaining wall. The gallows frame was repaired where necessary and some new stop logs supplied; the guide booms require extensive repairs and two snubbing piers constructed.

The quantity of timber that passed through the slide was as follows, viz. :—

Saw-logs .....	247,085
Boom timber pieces.....	5,488
Square do .....	6,972
Cedar.....	39,043

#### BOBCATGEON.

The obstructions to navigation that occurred in the river have been removed.

In the month of June last, a drive of sawlogs broke loose and came down en masse over the dam in Big Bob Channel, injuring it to some little extent; this has occurred several times, and in order to protect the works and guard against it in future, it would be advisable to construct some piers with a stiff guard boom at the head of the channel.

The quantity of timber that passed down the channel was as follows, viz. :—

Saw-logs.....	150,271
Boom timber pieces.....	1,566
Square do .....	6,972
Cedar.....	8,000

#### BUCKHORN.

The works at this station under the charge of this Department, consist of the slide, booms and piers. The dam comes under the control of the Department of Railways and Canals.

The bulkheads of slide have been entirely renewed and two piers built each 13 feet by 13 feet.

The contract for the construction of the lock and cut is being pushed rapidly forward and the contractor contemplates its completion before the end of the present fiscal year. This work will necessitate the construction of several piers and booms to divide the steamboat channel from the drive.

The following is the quantity of timber that passed through the slide, viz. :—

Saw-logs.....	96,271
Boom timber pieces.....	1,366
Square do .....	6,072
Cedar.....	8,000

#### BURLEIGH.

The works here consisting of a dam and slide being virtually under the control of this Department at present, need general repairs, three courses of the dam were carried away by the freshet, and the slide injured but not to any great extent.

The new dam located here and under contract will not be ready for the running season this fiscal year, and consequently it would be advisable to have the present dam and the slide receive such temporary repairs as are absolutely necessary for next year's drives.

The quantity of timber that passed through the slide was as follows, viz. :—

Saw logs.....	112,271
Boom timber pieces.....	1,566
Cedar.....	16,000

#### YOUNG'S POINT.

The Government having assumed control of the dam and slide during the past fiscal year in connection with the Trent Valley Navigation, I presume the slide and guide booms will come under the control of this Department, and as there is a difficulty existing between the running of timber and steamboat navigation at this station some means must be arrived at to allay it.

The most feasible that presents itself is as follows :—A short distance above the dam a channel exists between an island and the east or Dummer shore, about 60 feet wide; at low water this passage is nearly dry, but by excavating it to a depth of say 3 feet, with the addition of two small piers and a guide boom at the head, it would make a complete and separate channel for timber—the excavating would be in gravel. The channel at present for both timber and steamboats is on the west side of the island, between it and the Smith shore, and the timber is constantly blocking the channel. Cleaning the Dummer Channel and compelling the lumbermen to use it, would, I am of opinion, solve the difficulty. I tested the question this spring when there was about 3 feet of water in the passage, by compelling a drive of Messrs. Rathbun to use it, and the foreman in charge expressed himself as preferring it by “long chawks” to the other channel.

The quantity of timber that passed through the slide was as follows, viz. :—

Saw logs.....	146,764
Boom timber pieces.....	2,960
Square do .....	6,072
Cedar.....	120,145

#### LAKEFIELD.

The dam and slide at this station have also been assumed by Government during the past year, it being necessary for the Trent Valley Navigation, and it is the intention of the Department Railways and Canals to construct a new, dam the present one being old and leaky. A similar difficulty exists on the reach between this and Young's Point to that above Young's Point, viz: the obstruction of navigation by the

drive, and this was exemplified in a very marked manner this year, and was the cause of delay and loss to the steamboat owners and public in general.

The two points where the interests clash are known as the Three Islands and Henderson's Narrows. It is my intention to make a detailed report thereon, with explanatory sketches for the information of the Honourable the Minister.

The quantity of timber that passed through the slide was as follows, viz. :—

Saw logs.....	144,964
Boom timber pieces.....	2,805
Square do .....	3,600
Cedar.....	120,145

#### PETERBOROUGH.

From this station to Heely's Falls, a distance of fifty-six miles, there is slack water navigation for vessels drawing 5 feet, excepting one month in the season,—when it is difficult to retain this depth of water on the bars and lower mitre sill of Peterboro' lock.

The saw dust banks in the river, for which an amount of \$1,000 was appropriated and expended during the past year for their partial removal, are still a great obstruction to navigation, and are becoming such a nuisance as to even interfere with the running of logs, and although at last Session of Parliament a sum of \$3,000 was appropriated to be expended this fiscal year on their removal, by means of a drag attached to a tug which will, no doubt, be a great benefit, still I am of opinion that it will be necessary to have a dredge built and kept on these waters, more especially as the navigation is being greatly extended.

#### LITTLE LAKE.

This lake is also becoming speedily choked with sawdust and refuse from the saw mills on the river above the town, and unless some steps are taken to prevent the nuisance, navigation in a short time will have to be suspended.

The boom and piers received temporary repairs last winter to prevent them being carried away by the ice shore. The boom will be entirely renewed this year. Representations have been made by some of the lumbermen as to the necessity of constructing a permanent assorting jack in this boom and compelling the assorting to be done thereat, instead of as at present at the mouth of the river in Rice Lake. This will probably be laid before the Department in a short time, showing in detail exactly what is required.

#### WHITLAW'S RAPIDS.

The east guide boom to the main slide was carried away last spring, but was caught down the river and brought back. It requires some slight repairs, including new chains.

The quantity of timber that passed through the slide was as follows, viz. :—

Saw logs.....	283,964
Boom timber pieces.....	3,631
Cedar.....	117,615

#### OTONABEE RIVER

The bar at "Dangerfield" requires clearing. The obstruction consists of boulders. The readiest way to remove them is to rig up a derrick on a scow, and by such hoist the small ones and deposit them so as to form a rough "groin." The larger ones could be blasted and also removed. By this means a good channel could be made for the steamboats at all seasons of the year.

The sawdust banks at the outlet of the river into Rice Lake are becoming also such a nuisance as to prevent the steamboat from taking the direct channel, viz., the eastern one. There are three channels at the outlet of this river, an eastern, centre and western; the first is the most direct, shortening the steamboat route by

over a mile; but it is so choked with sawdust as to prevent its being used. The middle channel is in a similar condition, and they are becoming so shallow as almost to impede even the passage of saw-logs. It will be therefore necessary to dredge these channels the coming year, an appropriation for such having been granted last Session of Parliament.

## HASTINGS.

The slide requires a new gallows frame. In the spring a floating island (bog) having an area of over four acres, came down the lake and river and carried away one of our guide booms and injured another, but not to any great extent. It was at first thought that the dam and lock would be seriously injured, but necessary precautions were taken to prevent any serious injury. The bog was blown up and cut in several pieces, but it took some weeks to get it clear, and during its entanglement with the works, the water rose over two feet in the lake above.

The booms will have to be repaired this season.

The quantity of timber that passed through the slide was as follows, viz:—

Saw logs.....	250,493
Boom timber pieces.....	3,200
Cedar.....	117,645

## HEELY'S FALLS.

The slide has been repaired and is in good running order. The guide boom was extended to the opposite shore and a pier 18 by 20 feet constructed.

The quantity of timber that passed through the slide was as follows, viz:—

Saw logs.....	250,493
Boom timber pieces.....	3,200
Square do .....	324
Cedar.....	117,645

## CROW BAY.

The retaining boom is decayed in many places and will receive a thorough overhauling this year.

## MIDDLE FALLS

The works at this station are exclusively for the benefit of the lumber trade. The slide and guide booms thereto are undergoing the necessary repairs, for which an amount was granted at last Session of Parliament. Owing to the manner in which the lower slide leaked, it was abandoned some years ago, and a cut made in the wall of the basin, through which logs are run into the main river. This plan is found not to give as good satisfaction as was supposed, as the logs shoot out on the shoals, and consequently require a great deal of "tailing." To obviate this, two plans are proposed; one is to construct a breakwater running obliquely into the main river from the basin wall, so as to direct the logs clear of the shoals; the other, and in my opinion, the better, is to take the bottom out of the slide and use it as heretofore. One of the two plans will be carried out this year.

The quantity of timber that passed through the slide during the past year was as follows, viz:—

Saw-logs.....	329,447
Boom timber pieces.....	3,550
Square do .....	324
Cedar.....	179,772

## PERCY BOOM.

The boom, 2,415 feet long, will be renewed when necessary, and will receive a general overhauling this year.

## CHISHOLM'S RAPIDS.

The slide, which is 100 feet long and 50 feet wide, is in a bad state of repair. Instructions have been given to execute the required repairs. The sluice is also to receive such repairs as may be found necessary.

The quantity of timber that passed through the slide during the past year was as follows, viz. :—

Saw-logs.....	329,447
Boom timber pieces.....	3,550
Square do do .....	324
Cedar.....	179,772

In the year 1855, the works at Heely's Falls, Crow Bay, Middle Falls, Percy Boom and Chisholm's Rapids, were transferred to a Committee of Management under certain conditions, but in 1870 a great portion of the works were so damaged by the freshet as to prevent the running of cribs, and timber and logs were run loose. In 1873 a new Committee was named and the works placed under their management, similarly as they were in 1855; but this so-called Committee, after a few years, became defunct, and did not comply with the terms of the Order in Council, consequently the Government assumed the management in the public interest.

I have the honour to be, Sir,

Your obedient servant,

THOMAS D. BELCHER,

*Superintending Engineer.*

H. F. PERLEY, Esq.

Chief Engineer, Department of Public Works,

APPENDIX No. 15.

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REPORT

ON

PUBLIC WORKS

IN

BRITISH COLUMBIA,

FOR FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

Hon. J. W. TRUTCH, C.M.G., Resident Agent.

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## APPENDIX No. 15.

## REPORT ON PUBLIC WORKS IN BRITISH COLUMBIA.

Ref. No. 38,795.

VICTORIA, B.C., 17th September, 1883.

SIR,—I beg to submit, for your information, the following report upon the Public Works in this Province carried on under my supervision during the fiscal year ended the 30th June last, accompanied by a tabular statement thereof.

## DREDGING AND DREDGE VESSELS REPAIRS.

Dredging operations were continued off Shoal Point, Victoria Harbour, from the 1st July, 1882, to the 26th January, 1883, when the appropriation being almost expended, operations were suspended, and the dredge and attendant vessels laid up, all of which was fully reported to you in my letter dated 9th February last.

On authority conveyed to me by a telegram from Mr. Perley, Chief Engineer of the Public Works Department, tenders were invited in May for the construction of four (4) mud punts, two (2) of which were to be completed before the 30th June last, so that they might be paid for out of the appropriation set apart for that purpose for the fiscal year 1882-83. Mr. Alexander Allen's tender being the lowest, the contract was awarded to him, and was completed within the specified time and in a satisfactory manner.

Preparatory to resuming operations on the 1st July, various necessary repairs were made to the dredge and tug "Georgie" which were paid for out of the unexpended balance of the appropriation for "Dredge Repairs" for the fiscal year 1882-83, as proposed in my report to you dated 9th February last should be done.

In connection with this work I have caused a survey to be made of the site of the dredging operations during the past year; a plan of which, together with cross sections showing amount of work performed, accompanies this report.

## NEW WESTMINSTER POST OFFICE.

This building was completed on the 23rd May last, on which date Mr. Kennedy, Superintendent of the work, issued the final certificate to the effect that the work had been completed to his satisfaction. This certificate was duly forwarded to the Department with an accompanying letter dated 25th May, 1883. Subsequently Mr. Hayward sent in a claim for payment for extra work performed. I also forwarded this to your Department with a report upon the same, dated 8th June last. Although this building has been completed according to the plans and specifications, it is not yet fit for occupation by any of the Departments, no office fixings of any kind having been provided. The two upper floors remain unfinished, and no latrines have been provided. A retaining wall has also to be built in the rear of the building, and some old adjacent buildings now in a state of dilapidation should be removed and a fence built around this Government property. These different items, together with the office fixings, will require an outlay of about \$4,500. I have entered more fully into these matters in letters addressed to the Chief Architect dated 2nd May and 26th June, 1883, and in telegrams to him dated 11th May, 13th and 26th June, 14th July and 27th August, and to yourself of the date last mentioned.

## NANAIMO POST OFFICE.

Work on this building was commenced on the 2nd March last, and has since been carried on satisfactorily and energetically by the contractors, Messrs. Smith and Clark, of Victoria. They expect to have their contract completed by about the first week in October next. No provision is made in the contract for office fittings, nor for approaches to the front and rear of the building, as to which I have communicated with the Chief Architect by letter dated 30th April, and by telegram dated 11th April last, and 13th September instant.

## BRITISH COLUMBIA PENITENTIARY.

The workshops at the Penitentiary have been fitted up in accordance with the suggestions contained in my letter to the Honourable the Minister, dated 9th July, 1882, and duly authorized to be carried out by Departmental letter No. 14,362, dated 29th August, 1882. These suggestions embraced the construction of a blacksmith's forge, carpenter's bench, water closets, urinals and sinks supplied with water from the main pipe, iron gratings to all the windows and galvanized iron gutters and down pipes, all of which work has been performed very satisfactorily at a cost within the amount of expenditure authorized for this work, namely \$2,000.

## REPAIRS TO PUBLIC BUILDINGS.

Various repairs where necessary have been made from time to time on the different Public Buildings under the control of the Dominion Government in this Province, thereby keeping them in an efficient state. None of these items of expenditure appear to call for special remark.

## HARBOURS AND RIVERS. REMOVAL OF SNAGS, FRASER RIVER.

In accordance with the authorization contained in Departmental letters No. 12,904, of 5th June, 1882, and No. 13,749, of 28th July, 1882, to expend \$2,500 on this work, tenders were invited for the removal of about twenty snags from the Fraser River, above New Westminster. Mr. Henry Saunders' tender being the lowest was accepted. Work was commenced where it was considered that the removal of snags was most urgently required, under the supervision of Mr. Robinson. Eighteen (18) snags were removed under this contract at the price of \$100 each, amounting to \$1,800, added to which the sum of \$183 was paid to Mr. Robinson for salary and expenses, bringing the total expenditure on this work up to \$1,983.

## MILITARY WORKS.

In accordance with instructions by Departmental letter, No. 11,577, dated 27th May, 1882, repairs to Finlayson Point and Macauley Point Batteries were carried out partly by contract and partly by days' labor, in a satisfactory manner; the amount expended being within the appropriation, viz., \$750, as to which work I reported by letters 14th August and 31st October, 1882.

## TELEGRAPH SERVICE.

I do not find it necessary to make any special remarks in this communication upon this service carried on in this Province under my general supervision, but I forward by this mail to Mr. Gisborne, Superintendent of Telegraph and Signal Service, a copy of a report to me thereon from Mr. Wilson, District Superintendent in British Columbia, which no doubt will be laid before you in due course by Mr. Gisborne.

I have the honour to be, Sir,

Your obedient servant,

JOSEPH W. TRUTCH.

The Honourable

Sir HECTOR L. LANGEVIN, C.B., K.C.M.G.,  
Minister of Public Works.

## BRITISH COLUMBIA.—DEPARTMENT OF PUBLIC WORKS.

STATEMENT of Public Works carried on in the Province of British Columbia, during fiscal year ended 30th June, 1883.

Name of Work.	District or County.	Number and Date of Letters authorizing Expenditure.	Expenditure authorized.	Expenditure or liability incurred from 1st July, 1882, to 30th June, 1883.	Letters from Dominion Government Agent to the Honourable the Minister of Public Works.
No. 1.—Dredging Victoria Harbour. Dredge Vessels, Repairs ... New Plant.....	Victoria District... do do do	No. 13749, 13th July, 1882 do do No. 13935, 7th Aug., 1882	\$ cts. 7,500 00 3,600 00 1,500 00	\$ cts. 7,420 40 3,808 59 1,500 00	Letter 9th February, 1883. Telegram 6th February, 1883.
No. 2.—New Westminster Post Office	New Westminster District.....	.....	.....	1,459 50	Letters 17th July, 11th August, 25th September, 8th, 9th and 24th November, 23rd December, 1882. 29th January, 20th and 30th April, 2nd, 3rd, 16th and 25th May, 8th, 15th and 26th June, 1883. Telegrams 6th and 17th July, 11th August, 23rd September, 23rd and 28th October, 4th November, December, 1882. 11th January, 28th and 30th April, 11th May, 17th May (2), 13th and 26th June, 1883.
No. 3.—Nanaimo Post Office.....	Vancouver District	.....	.....	447 32	Letters 5th July, 26th September, 7th and 29th December, 1882. 19th and 30th April, 16th May, 8th June, 1883. Telegrams 5th July, 7th, 11th, 17th, 22nd and 24th July, 17th and 22nd August, 26th September, 23rd October, 6th December, 1882. 5th February (2), 20th April, 11th May, 11th June, 1883.
No. 4.—B C. Penitentiary, Fence and Workshops.....	New Westminster District.....	No. 14253, 25th Aug., 1882	3,450 00	.....	Letters 6th July (2), 23rd September, 1883. Telegrams 5th September, 27th October, 1882.
do do do	do do	No. 14362, 29th Aug., 1882	1,500 00	.....	
do do	do	No. 15477, 31st Oct., 1882	500 00	2,470 19	
No. 5.—Repairs to Public Buildings, Victoria.....	.....	.....	.....	302 06	
Repairs to Public Buildings, New Westminster.....	.....	.....	.....	360 75	

## BRITISH COLUMBIA.—DEPARTMENT OF PUBLIC WORKS.

STATEMENT of Public Works carried on in the Province of British Columbia, during fiscal year ended 30th June, 1883.—*Continued.*

Name of Work.	District or County.	Number and Date of Letters authorizing Expenditure.	Expenditure authorized.	Expenditure or liability incurred from 1st July, 1882, to 30th June, 1883.	Letters from Dominion Government Agent to the Honourable the Minister of Public Works.
<b>No. 6.—Harbours and Rivers—</b>					
Removal of snags, Fraser River .....	New Westminster District.....	No. 12904, 5th June, 1882	\$ cts. 1,363 39	\$ cts. .....	Letters 21st June, 15th July, 15th August, 26th September, 28th November, 29th December, 1882.
do do	do	No. 13749, 28th July, 1882	1,136 61	2,066 14	Telegrams 22nd September, 22nd December, 1882.
do Naas River.	do	do	500 00	210 98	Letter 15th August, 1882.
do Skeena do.	do	do	2,000 00	751 12	do do
<b>No. 7.—Military Works—</b>					
Repairs to Finlayson's and Macaulay Point Batteries.	Victoria .....	No. 11557, 27th May, 1882	600 00	748 87	Letters 23rd June, 14th August, 31st Oct., 1882.
do do	do	No. 16050, 9th Dec., 1882	150 00	.....	Letters 12th and 21st July, 11th, 14th and 17th August, 4th, 18th and 27th September, 23rd October, 1st, 4th and 25th November, 1882.
do do	do	No. 13970, 9th Aug., 1882	32,000 00	31,250 36	January, 8th February, 8th March, 4th, 9th and 21st May, 6th June, 1883.
<b>No. 8.—Telegraph Service.....</b>					

JOSEPH W. TRUTCH.

Victoria, B.C., 17th September, 1883.

APPENDIX No. 16.

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# STATEMENT

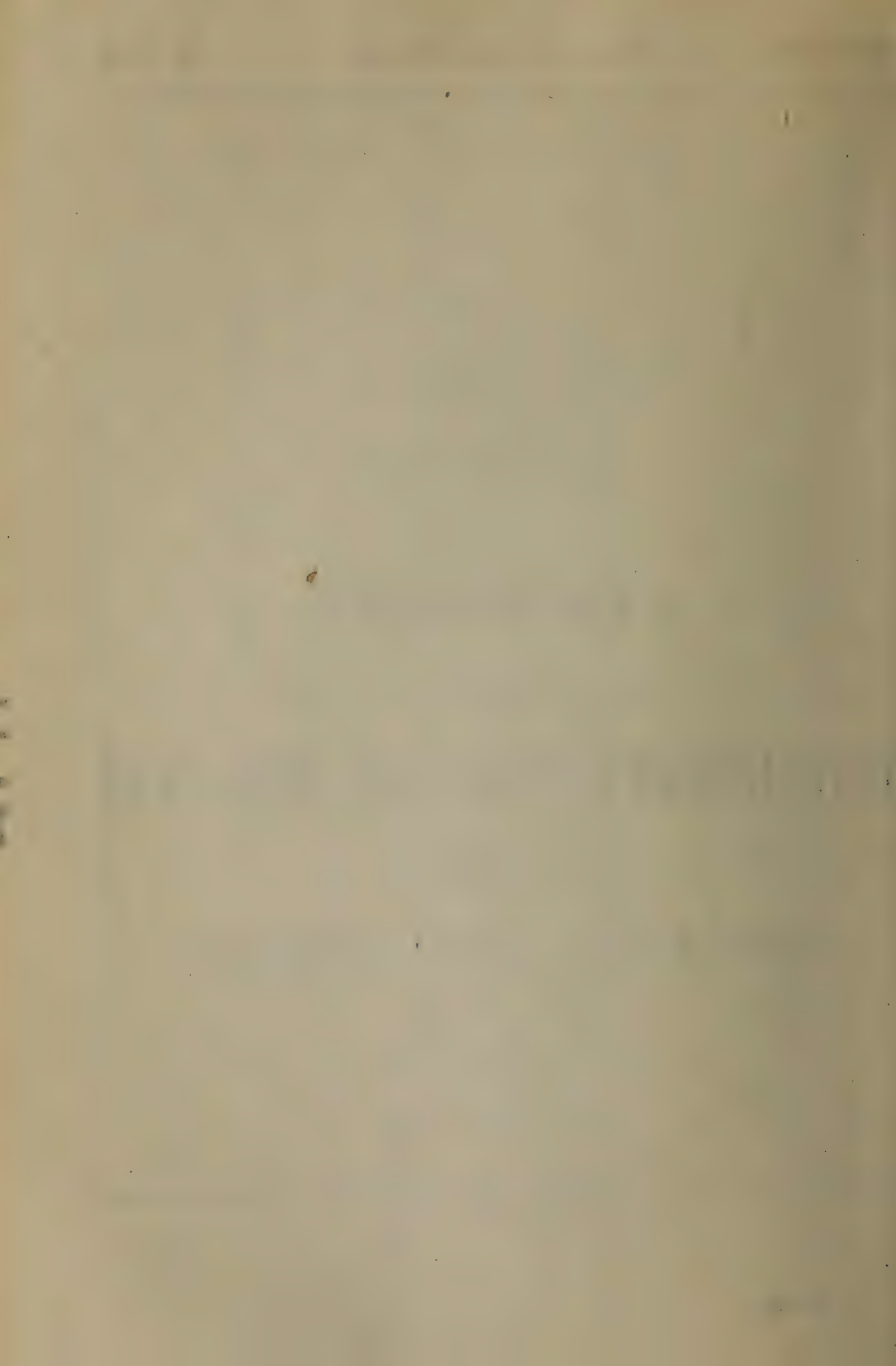
SHOWING THE

# GOVERNMENT PIERS AND WHARVES

IN THE PROVINCES OF

# ONTARIO AND QUEBEC.

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Names of Places.	Counties.	Total Length.	Width.	Height at end.	Block.		Depth of Water at end.		Date of Commencement of Work.	Remarks.
		Feet.	Feet.	Feet	Length.	Width.	E. L. W.	E. H. W.		
Etang du Nord, Magdalen Islands.....	Gaspé.....	225	28	22	.....	.....	Feet.	Feet.	1881	This work is still in progress. Work in progress; Municipality supplemented Parliamentary grant with \$2,500 towards the work.
New Carlisle.....	Bonaventure.....	500	25	.....	50	25	.....	.....	1881	
Carleton .....	do .....	225	20	17	90	20	4½	12½	1881	This work is still in progress; Municipality made a grant of \$2,500 towards its construction.
Matane .....	Rimouski.....	480	30	20	.....	.....	1½	15½	1878	This wharf consists of 10 cribs, with spaces of 25 feet between them. To prevent the shifting of sand, the spaces have been closed up in 1882 with piles driven across them.
Rivière Blanche.....	do .....	210	20	20	150	30	2	16	1876	The block was completed in 1880. It is to be connected to the shore; the distance thereof being 655 feet, 180 feet of which were built in 1882.
Rimouski.....	do .....	2,500	20	25	150	30	8-0	28-0	1853	This pier is kept in good repairs by the Intercolonial Railway.
Trois-Pistoles .....	Temiscouata.....	980	30	.....	.....	.....	.....	.....	1881	Work in progress. Dimensions to be as given when pier is completed.
Rivière du Loup.....	do .....	1,641	30	42	124	56½	14	34	1852	Since 1877 the superstructure has been partially rebuilt and the pier raised 2 feet. Water has become shoal by the deposit of sand since 1867.
Anse du Portage.....	Chicoutimi .....	108	18	28	Slip.	.....	.....	21	.....	Built in 1882.
Anse St. Jean .....	do .....	366	26	29	104	24	4	24½	.....	Built in 1875-76 by Provincial Government and Municipality. Since 1879, the works have been continued by the Dominion Government.
St. Alphonse de Bagotville .....	do .....	445	24	49	50	40	29	47	1860	Built by Municipality in 1860; burnt in 1870; rebuilt by Government in 1875. This pier is being extended; the works are in progress.
Chicoutimi .....	do .....	282	30	28	127	34	7	19	1873	Built in 1873 by the St. Lawrence Steam Co. In 1874, the Government took possession of it and made repairs in 1880-81-82.

## GOVERNMENT PIERS AND WHARVES.—Continued.

## PROVINCE OF QUEBEC.—Continued.

Names of Places.	Counties.	Total Length.	Width.	Height at end.	Block.		Depth of Water at end.		Date of Commencement of Work.	Remarks.
					Length.	Width.	E. L. W.	E. E. W.		
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.		
Rivière Ouelle, Pointe aux Originaux.....	Kamouraska.....	1,219	28	42	237½	51	14	32	1852	Completed in 1856. This pier has been raised 2 feet within the last 3 years. Lighthouse at end of pier.
Malbaie, Cap d'Aigle.....	Charlevoix.....	158	35	42½	.....	.....	18	37	1880	Work finished in 1881.
Malbaie, Pointe au Pic.....	do.....	500	30	46	108	70	24	44	1850	Completed in 1854.
Eboulements.....	do.....	900	30½	36	80	45	15	34	1852	Work completed in 1853.
Baie St. Paul, Cap aux Corbeaux.....	do.....	850	30	36	.....	.....	12	29	1881	Work in progress. Dimensions to be as given when work is completed.
Baie St. Paul, Block.	do.....	200	30	.....	.....	.....	12	31	1874	Lighthouse on block.
Ile aux Couvres.....	do.....	263	32	42	.....	.....	16½	33½	1881	Built with the grant by the inhabitants.
St. Jean Port Joli.....	L'Islet.....	332	20	24	.....	.....	5	22	1875	A block 30 x 30 was built by the inhabitants. The remainder was built by the Government and completed in 1881.
L'Islet.....	do.....	1,104	31	34	48	51	7½	25½	1852	Completed in 1855. The whole superstructure was rebuilt in 1876-7-8.
Ile aux Grues.....	Montmagny.....	225	25	32	75	36	6	24	1882	Work completed.
Grosselle, East Whf do.....	do.....	345	25	36	84	50	10	31	.....	Completed in 1866. An addition was built in '82.
St. Thomas.....	do.....	315	48	.....	.....	.....	.....	.....	.....	Completed in 1848.
Berthier (en bas).....	Bellechasse.....	100	25	19	.....	.....	.....	25	1879	Commenced in 1879 and completed in 1882.
.....	.....	466	32	34	59	27	12	30	1852	Completed in 1853. This pier was repaired in 1877-78.
St. Michel.....	do.....	1,091	30	27	50	37	6	22	.....	Built by Municipality by means of Municipal Loan Fund.
St. François I. d'Orl. Ste. Famille do.....	Montmorency.....	460	30 & 25	24	90	33	.....	20	1882	Work not completed. There are 6½ feet at half neap and 8½ at half spring tides. This pier was completed at the end of the fiscal year 1881-82.
St. Jean do.....	do.....	651	30	.....	50	44	7	23	.....	Lighthouse at the end of this wharf. This wharf was built by the Municipality, and is owned by a Company. The Government having built a lighthouse on it, the Department has kept the pier in repairs ever since.

St. Laurent do	do	583	20	.....	104	32	7	23	.....	Lighthouse at the end of this wharf.
Eucreuil.....	Portneuf.....	70	20	..... 16	.....	.....	.....	12	1881	Dry at low water. There are, at high water (neaps), 7 feet of water; at high water (spring), 12 feet of water. It was built in 1881.
Nicolet.....	Nicolet.....	3,500	10	.....	98	43	5	.....	.....	These works are in progress of construction. This pier was commenced in 1882. It is not finished. In the high stages of water this pier is covered.
Yamachiche.....	St. Maurice.....	1,460	12	..... 10	.....	.....	.....	.....	.....	A wharf.
Berthier (en haut).....	Berthier.....	.....	.....	.....	186	66	10	.....	.....	This pier was built in the fall of 1882.
Agnes, Lake Megantic.....	Compton.....	435	30	..... 13	80	20	6	11	1882	On Lake Megantic. Pier built in 1882.
Propolis.....	do.....	165	12	..... 13	20	20	6	11	1882	.....
Lavaltrie.....	Berthier.....	183	20	..... 17	54	33	10	.....	.....	.....
L'Assomption.....	Assomption.....	101	69	.....	.....	.....	.....	.....	.....	.....
St. Sulpice.....	do.....	195	20	..... 18	54	33	10	.....	1856	A stone embankment was built from the shore to the wharf, the length being 150 feet and width, 21 feet, when completed. This landing pier was rebuilt in 1882.
Cascades Pier.....	Soulanges.....	.....	.....	.....	70	20	.....	.....	.....	This landing pier was rebuilt in 1881.
St. Timothée.....	Beauharnois.....	.....	.....	.....	100	24	7½	11½	.....	This landing pier was rebuilt in 1880.
Cedars.....	Soulanges.....	.....	.....	.....	115	24	7½	11½	.....	A road from the King's Highway to the Wharf has been made by the R. and O. Navigation Co.; its length is 800 feet.
St. Dominique.....	do.....	64	24	.....	73	24	15	19	.....	Work in progress. The proposed pier will have a length of 1,500 feet; 220 feet were built in 1882.
Coteau Landing.....	do.....	104	20	.....	249	24	13	17	.....	On the south shore of Lake St. Francis. ....
St. Zotique.....	do.....	220	20	.....	100	24	9	13	1882	.....
St. Anicet.....	Huntingdon.....	300	34 & 18	.....	.....	.....	.....	.....	1862	.....

## GOVERNMENT PIERS AND WHARVES.—Continued.

## PROVINCE OF ONTARIO.

Names of Harbours.	Counties.	Lakes.	Length.		Revetment or Pilework.	Breakwater.	Total Wharving.	Width.	Depth of Water at Entrance.		Expenditure by Government, Local Companies, Municipal Authority or Harbour Commissioners.	Remarks.
			North or East Pier.	South or West Pier.					E. L. W.	E. H. W.		
L'Orignal .....	Prescott.....	River Ottawa.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.		Completed in 1853.
Cobourg .....	West Northum- berland.	Lake Ontario.	1,190	1,650	1,050	.....	3,890	30 {	12, E.P.	26		The works were commenced in 1829; an extension of 200 ft. to the East Pier is under con- tract.
Port Hope.....	East Durham.	do	1,471	1,641	6,663	300	9,774	20-30	12	16½		The works were commenced in 1832. The breakwater, 300 ft. in length, is under contract.
Newcastle .....	West Durham.	do	880	600	730	...	2,210	15-30	12	16½		The rebuilding of the piers and pilework are now going on.
Port Darlington.	do	do	1,180	1,620	.....	.....	2,800	20-0	12	16½		
Oshawa .....	South Ontario.	do	.....	.....	.....	.....	815	20-30	11	11½		The works were commenced in 1843.
Whitby .....	do	do	390	645	1,760	.....	2,795	20-30	11	15½		
Pickering.....	do	do	685	835	.....	.....	1,460	15-30	12	16½		
Toronto (Queen's Wharf)	York .....	do	.....	.....	.....	.....	1,091	30	12	16½		Queen's Wharf. The works were commenced in 1833.
Toronto Harbour Improvements.	do .....	do	.....	.....	13,130	.....	.....	11	.....	.....		This work is under contract. Messrs. Cooke & Jones are the contractors. Operations were commenced on 1st Jan., 1883.
Oakville .....	Halton .....	do	640	500	422	.....	1,562	15-60	7	11½		The works were commenced in 1829.
Burlington Piers	Wentworth ..	do	2,307	2,710	.....	.....	5,017	20-40	14	18½		The works were commenced in 1825. They are kept in re- pair by the Department of Railways and Canals.

Port Maitland....	Monck.. .....	Lake Erie.....	1,500	1,500	.....	3,000	.....	10	13	.....	These piers form the entrance to the Broad Creek of the Welland Canal. The works were commenced in 1833 or 1834. The works were commenced in 1837.
Port Dover.....	South Norfolk.	do .....	1,020	1,020	.....	2,040	.....	10	13	Government and Harbour Commissioners	The works were commenced in 1833 or 1834.
Port Burwell.....	East Elgin....	do .....	570	850	1,100	2,520	15-30	9	12	Harbour Company and Government.	The works were commenced in 1837.
Port Bruce.. ....	do .....	do .....	700	750	.....	1,450	.....	.....	.....	do	
Port Stanley....	do .....	do .....	1,150	1,870	720	3,740	20-30	11½	14½	Government Commissioners, Government also by the London and Port Stanley Railway Company.	The works were commenced in 1827.
Rondeau.....	.....	do .....	780	1,080	2,000	3,863	30-40	18	21	Government.....	The works were commenced in 1844.
Kingsville .....	South Essex...	do .....	880	440	750	2,070	20-50	12	15	Municipal Authority and Government.	490 feet of cribwork and 750 feet of pilework are under contract since October, 1882.
Bayfield .....	South Huron..	Lake Huron...	890	875	.....	1,695	20-30	11	14½	Government and Tp. of Hanley.	The pier inside the harbour, on the north side, is much in need of repairs.
Goderich.....	West Huron...	do ..	1,320	1,520	720	3,560	30	14	17½	Government.. .....	A Harbour of Refuge. The pilework is under contract.
Port Albert.....	do .....	do ..	290	120	.....	410	20	5	8½	.....	
Kincardine.....	West Bruce...	do ..	905	880	1,905	3,690	30	12	15½	Government. The Municipal Council of the Town have also made some improvements.	Some of the pilework is under contract.
Inverhuron.....	do .....	do ..	.....	.....	.....	450	15-30	16	19½	Government.....	Built in 1856 and 1857.
Port Elgin.....	do .....	do ..	380	.....	600	980	20	12	15½	Government and Local Company.	Breakwater under contract. The Village contributes \$5,000 towards the work.
Southampton & Chantry Island	do .....	do ..	570	.....	4180	4,750	20-30	14	17½	The Municipality aided by a Government grant built the pier. The breakwater, &c., were built by the Government.	A Harbour of Refuge. The Government has the control of the whole harbour. Southampton piers were built in 1858. Chantry Island piers were commenced in 1856.
Warton.. .....	North Grey....	Georgian Bay.	.....	.....	.....	1,235	20	14	17½	Government.....	Dimensions of work when finished the work is under contract.
Big Bay.....	do .....	do ..	.....	.....	.....	452	14-25	11½	15	Local Authority and Government.....	Built in 1877 and 1881.
Owen Sound.....	do .....	do ..	.....	.....	2,470	2,470	20	14	17½	Town Council and Government.	This work was built in 1881-82.

GOVERNMENT PIERS AND WHARVES.—Continued.  
PROVINCE OF ONTARIO.—Continued.

Names of Harbours.	Counties.	Lakes.	Length.		Revelment or Pilework.	Breakwater.	Total Wharving.	Width.	Depth of Water at Entrance.		Expenditure. by Government, Local Companies, Municipal Authority or Harbour Commissioners.	Remarks.
			N o t h or East Pier.	S o u t h or West Pier.					E. L. W.	E. H. W.		
Meaford .....	East Grey .....	Georgian Bay	775	feet.	895	feet.	2,080	feet.	14	17½	Municipal Council and Government.	A portion of the pilework is under contract. The work of construction was com- menced in 1856.
Thornbury .....	do .....	do	.....	.....	.....	.. ..	420	15-30	12	15½	Municipality and Go- vernment.	This pier is, at present time, being repaired.
Collingwood .....	North Simcoe.	do	.....	.....	.....	1,390	.....	20-24	11	14½	Government and Northern Railway Co.	The breakwater, 790 feet in length, was built in 1874-75. An extension to the east pier, 690 feet in length, is under contract.
Port Arthur .....	Algoma .....	Lake Superior.	.....	.....	.....	....	610	30	.....	14	Government .....	Cost included in the expendi- ture incurred in the construc- tion of the Dawson Road. It was built in 1870.

H. F. P.

APPENDIX No. 17.

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TABULAR STATEMENTS

SHOWING THE DATES OF THE

OPENING AND CLOSING OF NAVIGATION

AT THE

PRINCIPAL PORTS OF CANADA,

ON THE SEABOARD, AND ON THE GULF, RIVER, AND LAKES  
OF THE ST. LAWRENCE, AND ON SOME OF THE ROUTES  
OF INLAND NAVIGAAION; ALSO PORTS WHICH  
ARE ALWAYS OPEN.

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No. 1.—STATEMENT showing the dates of the Opening and Closing of Navigation at some of the principal Ports in the Gulf of St. Lawrence, the River St. Lawrence, Lake Ontario, Lake Erie, River Detroit, Lake Huron, Georgian Bay and Lake Superior, from 1867 to 30th June, 1883.

## GULF OF THE ST. LAWRENCE.

Years.	Charlottetown, P.E.I.			Georgetown, P.E.I.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	April 16...	Dec. 7...	Depth of water at the head of wharves, 16 to 20 feet; in channel from 36 to 60 feet; at entrance to harbour 70 to 80 feet. In the fall of 1882 schr. "P. L. G." sailed on 24th Dec. to Pictou. Harbour sealed with ice on 31st Dec. Ice commenced breaking up on 15th April, '83. S.S. "Princess of Wales" cleared for Pictou on 19th and returned same day. Springs rise 9½ feet; neaps rise 8 feet.	.....	.....	Depth of water at low tide in channel from opposite railway wharf to Wheeler's Bar buoy, 3½ miles, is from 30 feet, deepening gradually to 80 feet. Spring tides rise 5½ feet; neaps 4 feet. Cold weather commenced on 5th January, 1883. Steamer "Valetta" sailed 4th January. Steamer "Northern Light" returned from Pictou, N.S., on 27th March.
1868	do 24...	do 10...		.....	.....	
1869	do 15...	Jan. 10, '70		April 15...	.....	
1870	do 5...	Dec. 23...		March 25...	Jan. 25...	
1871	March 20...	Nov. 30...		.....	.....	
1872	April 20...	Dec. 20...		.....	.....	
1873	do 22...	do 11...		.....	.....	
1874	do 18...	do 19...		April 18...	Jan. 31...	
1875	May 5...	Nov. 29...		May 4...	do 5...	
1876	April 23...	Dec. 15...		April 20...	do 10...	
1877	do 12...	Jan. 4, '78.		March 30...	do 13...	
1878	do 8...	Dec. 30...		April 7...	do 29...	
1879	do 24...	do 19...		do 7...	do 30...	
1880	do 28...	do 1...		do 21...	do 3...	
1881	do 19...	do 27...		do 24...	do 3...	
1882	May 6...	do 29...		May 7...	Feb. 3...	
1883	April 18...	.....		April 14...	Jan. 11...	

## GULF OF THE ST. LAWRENCE—Continued.

Years.	Pictou, N.S.			Sydney, N.S.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	.....	.....	Depth of water on bar at low tide 17 feet; in channel in harbour 36 feet. Tides rise 6 feet. The Intercolonial Railway ferry steamer "Mayflower" continued her trips across the harbour until January 10th, 1883, and resumed them on March 29th, 1883.	April 23...	.....	Depth of water from 30 to 60 feet. Tides rise from 4 to 5 feet. North Sydney opens earlier and closes later than Sydney, being nearer the sea. No drift ice in harbour in spring of 1883.
1868	.....	.....		May 5...	Jan. 19, '69	
1869	.....	Jan. 14, '70		April 21...	.....	
1870	April 15...	Dec. 27...		do 11...	.....	
1871	March 25...	do 15...		March 21...	.....	
1872	April 25...	do 24...		May 3...	Dec. 31...	
1873	do 19...	do 18...		April 23...	.....	
1874	do 1...	do 28...		May 1...	.....	
1875	May 3...	do 1...		do 12...	.....	
1876	April 15...	do 27...		do 7...	Dec. 23...	
1877	do 7...	do 28...		April 7...	Jan. 8, '78	
1878	do 15...	do 28...		do 6...	do 16, '79	
1879	do 2...	do 17...		do 19...	Dec. 30...	
1880	do 30...	do 10...		May 6...	do 31...	
1881	do 18...	Jan. 4, '82.		April 29...	Jan. 5, '82	
1882	do 24...	Dec. 30...		May 11...	do 6, '83	
1883	do 10...	.....		April 16...	.....	

No. 1—STATEMENT showing the dates of the Opening and Closing of Navigation,  
&c.—Continued.

GULF OF THE ST. LAWRENCE.—Continued.

Years	Shediac, N.B.			Bathurst, N.B.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	.....	.....	No record kept before 1876. Spring tides rise 4½ feet Vessels load at the wharf down to 16 feet at high water. The depth at the "Deep Hole" where the largest vessel finish loading, is 19 feet.	.....	.....	.....
1868	.....	.....		.....	.....	.....
1869	.....	.....		.....	.....	.....
1870	.....	.....		.....	.....	.....
1871	.....	.....		April 24	Nov. 6...	.....
1872	.....	.....		.....	.....	.....
1873	.....	.....		.....	.....	.....
1874	.....	.....		.....	.....	.....
1875	.....	.....		May 10...	.....	.....
1876	May 16...	Dec. 9...		do 15...	Dec. 5...	.....
1877	April 25...	do 15...	.....	.....	.....	.....
1878	do 29...	Nov. 17...	.....	April 30...	.....	.....
1879	May 1...	Dec. 13...	.....	do 26...	.....	.....
1880	do 26...	Nov. 22...	.....	do 29...	.....	.....
1881	do 19...	Dec. 2...	.....	do 26...	Nov. 26...	.....
1882	do 9...	Nov. 22...	.....	May 15...	Dec. 4...	.....
1883	April 23...	.....	.....	do 3...	.....	.....

BAIE DES CHALEURS.

Year.	Percé, P.Q.			New Carlisle, P.Q.	Carleton, P.Q.	Campbellton, N.B.		
	Opened.	Closed.	Remarks.	Remarks.	Remarks.	Opened.	Closed.	Remarks.
1867	May 11...	Nov. 9...	These are the dates of first arrivals and last departure. Vessels could generally come a fortnight earlier in spring and leave 4 weeks later in fall as no heavy ice forms before the middle of January, and some years not until February.	Navigation generally opens about the middle of April and closes about the middle of December.	Navigation usually opens late in March or early in April and closes late in December or early in January. Some years the port has been open the whole winter.	.....	.....	At the mouth of the river Ristigouche and at head of Baie des Chaleurs.
1868	do 11...	do 14...				.....	.....	
1869	do 10...	do 27...				.....	.....	
1870	do 6...	do 15...				.....	.....	
1871	do 4...	do 25...				May 4...	.....	
1872	do 9...	do 7...				April 29...	.....	
1873	do 9...	do 25...				do 30...	Dec. 1...	
1874	do 7...	do 10...				do 10...	do 3...	
1875	do 17...	Dec. 5...				May 8...	Nov. 25...	
1876	do 12...	do 7...				do 11...	Dec. 10...	
1877	do 3...	Nov. 23...	.....	.....	.....	April 24...	do 10...	
1878	April 16...	Dec. 2...				do 21...	do 21...	
1879	do 15...	Nov. 27...				do 29...	do 19...	
1880	do 19...	Dec. 1...				May 6...	Nov. 23...	
1881	do 23...	Nov. 17...				do 4...	Dec. 10...	
1882	do 29...	Dec. 7...				do 11...	do 1...	
1883	do 23...	.....				do 9...	.....	

No. 1.—STATEMENT showing the dates of the Opening and Closing of Navigation  
&c.—Continued.

## RIVER ST. LAWRENCE.

Year.	Rimouski, P. Q.			Tadoussac, P.Q.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	Mar. 15..	Dec. 12...	Depth of water at wharf, low spring tides, 7 feet. Spring tides rises 16 to 17 feet.	The Saguenay River generally closes from the 20th to the 25th of November, and opens about the 10th or 12th of May. The harbour of Tadoussac is open all the winter. It occasionally fills with small ice with an easterly wind for a tide, but it being small batture ice, a steamer of moderate power can pass through it. In the winter of 1872 the steamer "Arctic" brought the ship "Pride of England," wrecked at Escoumains, into the Bay of Tadoussac in the month of January, where she wintered afloat. At 80 yards from the shore the water is 25 feet deep. Spring tides rises about 17 feet. Neaps, 10 feet.		
1868	do 20...	do 10...				
1869	do 19...	do 8...				
1870	do 18...	do 25...				
1871	April 5...	do 15...				
1872	do 1...	do 12...				
1873	do 3...	do 10...				
1874	March 24...	do 1...				
1875	do 20...	Nov. 26...				
1876	do 30...	Dec. 1...				
1877	April 1...	do 5...				
1878	do 7...	Nov. 28...				
1879	do 10...	Dec. 1...				
1880	March 17...	do 19...				
1881	do 20...	do 25...				
1882	do 22...	do 15...				
1883	do 12...					

## RIVER ST. LAWRENCE—Continued.

Year.	*Quebec, P.Q.			†Montreal, P.Q.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
			<p>The average depth of water in the harbour of Quebec is 14 fathoms, about two cables length from the wharf. In mid-channel the average is from 16 to 18 fathoms, and towards the south shore 25 fathoms. Spring tides rise 18 feet, neaps 13 ft. Flood runs 4 hours 45 minutes; ebb runs 7 hours 40 minutes. With a strong easterly wind the tide rises much more. The first winter steam ferry boat, the "Unity" began to run in 1857 from Quebec to Levis. A steamer arrived from Montreal on the 7th May, 1883.</p>			
1867	April 17...	Nov. 29...		April 22...	Dec. 6...	<p>Depth on L. Sill, Old Lock, La- chine Canal. ft in These measurements give the depths on sill of first lock. Add 5 feet which will give depth in harbour; and from 1st, Oct., 1882, add 8 feet which gives depth in harbour and new channel.—M. P. RYAN, Collector.</p>
1868	do 23...	do 28...		do 17...	do 9...	
1869	do 27...	do 27...		do 25...	do 6...	
1870	do 16...	Dec. 2...		do 18...	do 18...	
1871	do 22...	Nov. 27...		do 8...	do 1...	
1872	do 30...	do 26...		May 1...	do 8...	
1873	do 28...	do 22...		April 25...	Nov. 26...	
1874	do 28...	do 25...		do 25...	Dec. 13...	
1875	do 29...	do 23...		May 3...	Nov. 29...	
1876	May 6...	do 24...		April 27...	Dec. 10...	
1877	April 25...	do 26...		do 17...	Jan. 2 '78...	
1878	do 20...	do 25...		March 30...	Dec. 23...	
1879	do 29...	do 28...		April 24...	do 19...	
1880	do 30...	do 27...		do 17...	do 3...	
1881	May 1...	do 24...		do 21...	Jan. 2 '82...	
1882	do 5...	do 25...		do 11...	Dec. 9...	
1883	do 2...			do 26...	Dec. 6...	

\*See additional table at end of Appendix for opening and closing of Navigation at Quebec for 50 years.

†For additional information about Montreal Harbour, see table at end of Appendix.

No. 1.—STATEMENT showing the dates of the Opening and Closing of Navigation,  
&c.—Continued.

## RIVER RICHELIEU.

Years.	Sorel, P.Q.			St. John, P.Q.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	.....	.....	No record kept before 1869. 19 feet on gauge at Sorel represents 10 feet of water on flats of Lake St. Peter.	.....	Nov. 30...	Taken from the earliest and latest reports of vessels, no other record being kept, and the opening and closing of the Chambly Canal not being regulated by the state of the navigation in the Richelieu River and Lake Champlain.
1868	.....	.....		March 24..	Dec. 3...	
1869	April 26...	Dec. 2...		May 1...	do 7...	
1870	do 21...	do 6...		April 18...	do 5...	
1871	do 10...	Nov. 28...		do 4...	Nov. 28...	
1872	May 1...	do 30...		do 26...	do 30...	
1873	April 25...	do 20...		May 6...	do 24...	
1874	do 29...	do 26...		April 20...	do 24...	
1875	May 2...	do 27...		May 6...	do 23...	
1876	do 8...	Dec. 1...		April 5...	do 29...	
1877	April 18...	do 6...		do 26...	Dec. 5...	
1878	do 3...	do 9...		March 29...	do 10...	
1879	do 28...	do 1...		April 29...	do 18...	
1880	do 21...	Nov. 22...		March 19...	Nov. 22...	
1881	do 23...	do 25...		April 8...	do 28...	
1882	do 15...	do 28...		do 8...	do 20...	
1883	do 27...			do 27...		

## LAKE ONTARIO.

Years.	Kingston, Ont.			Belleville, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	April 8...	Dec. 18...	The depth of water in the Harbour and at the landing piers and wharves varies from 12 to 15 feet; the rocky bed of the river at the entrance is being deepened to 15 feet, the least being now 10 feet.	.....	.....	No record kept prior to 1871. Depth of water in harbour 8 to 12 feet.
1868	March 31..	do 24...		.....	.....	
1869	April 17...	Jan. 8, '70		.....	.....	
1870	do 13...	Dec. 31...		.....	.....	
1871	March 16..	do 25...		.....	Nov. 28...	
1872	April 22...	do 21...		April 18...	do 28...	
1873	do 24...	Jan. 14, '74		do 16..	do 20...	
1874	March 28..	do 5, '75		do 4...	do 29...	
1875	April 19...	Dec. 23...		do 12...	do 28...	
1876	do 18...	do 20...		do 18...	Dec. 1...	
1877	do 9...	Jan. 8, '78		do 6...	do 31...	
1878	March 11..	do 2, '79		March 11..	do 7...	
1879	April 21...	Dec. 28...		April 17...	do 14...	
1880	March 23..	do 21...		March 20..	Nov. 22...	
1881	April 12...	Jan. 12, '82		April 9...	Dec. 10...	
1882	March 7...	do 4, '83		March 10..	do 2...	
1883	April 19...			April 26...		

No. 1—STATEMENT showing the dates of the Opening and Closing of Navigation,  
&c.—Continued.

## LAKE ONTARIO—Continued.

Years.	Port Hope, Ont.			* Toronto, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867...	April 1...	Dec. 11...	Vessels can load in the new harbour and put out drawing 11 feet; and in the old harbour drawing 9½ feet. The elevation of the water-level fluctuates from 6 to 12 inches.	April 6...	Dec. 9...	Depth of water in harbour from 11 to 16 feet.
1868...	do 1...	do 7...		do 8...	do 12...	
1869...	do 1...	do 11...		do 1...	do 3...	
1870...	do 1...	do 13...		do 8...	do 24...	
1871...	May 23...	do 6...		March 11...	Nov. 30...	
1872...	April 1...	do 9...		April 12...	Dec. 10...	
1873...	do 1...	do 2...		do 14...	Nov. 26...	
1874...	do 1...	do 5...		March 16...	Dec. 20...	
1875...	do 1...	do 4...		April 16...	Nov. 30...	
1876...	do 1...	do 11...		do 11...	Dec. 9...	
1877...	do 1...	do 11...		March 25...	do 19...	
1878...	do 1...	do 8...		do 9...	do 16...	
1879...	do 1...	do 9...		do 25...	do 19...	
1880...	March 20...	do 15...		Feb. 19...	Nov. 22...	
1881...	April 1...	do 6...		April 1...	Jan. 2, '82	
1882...	March 20...	do 8...		Feb. 13...	Dec. 11...	
1883...	April 1...			April 13...		

\* For further particulars about Toronto Harbour, see Table Nos. 2 and 6.

## LAKE ERIE.

Years.	Port Stanley, Ont.			Port Dover, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867...	April 1...	Dec. 10...	Ten feet depth of water at entrance of harbour.	April 6...	Dec. 9...	The depth of water fluctuates owing to the wind. The usual depth is 10 feet, but with a strong southerly wind it rises at least four feet. The dates are taken from the Export and Import Manifest Books, but it is quite common for the harbour to be open long before a vessel leaves in the spring, and after the last arrival in the fall.
1868...	do 1...	do 10...		do 16...	do 2...	
1869...	do 1...	do 5...		do 24...	do 6...	
1870...	do 10...	do 10...		do 22...	do 6...	
1871...	March 20...	do 20...		do 3...	do 29...	
1872...	April 10...	do 5...		do 30...	do 2...	
1873...	do 1...	do 5...		do 28...	Nov. 22...	
1874...	March 20...	do 5...		do 15...	do 24...	
1875...	April 10...	do 20...		May 6...	do 26...	
1876...	do 1...	do 5...		April 19...	Dec. 4...	
1877...	do 10...	do 10...		do 25...	do 13...	
1878...	do 1...	do 10...		March 12...	do 10...	
1879...	do 5...	do 20...		April 29...	do 27...	
1880...	March 20...	do 15...		do 2...	Nov. 25...	
1881...	April 10...	do 10...		do 30...	do 3...	
1882...	do 1...	do 10...		March 25...	Dec. 15...	
1883...	do 14...			April 17...		

No. 1.—STATEMENT showing the dates of the Opening and Closing of Navigation,  
&c.—Continued.

Years.	RIVER DETROIT.			LAKE HURON.		
	Windsor, Ont.			Sarnia, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	Feb. 23...	Dec. 11...	Average depth of water at docks 15 feet; average at midchannel, 40 feet. The dates given indicate the arrival and departure of vessels from and to outside ports, but ferry boats cross the river at all seasons.	March 30...	Dec. 30	The season of navigation is opened by the first trip of the river line of steamers, and closes with the last trip.
1868	March 15...	do 10...		do 16...	do 12	
1869	April 5...	do 17...		April 1...	Jan. 6 '70	
1870	do 7...	do 1...		March 29...	Dec. 23	
1871	March 8...	do 8...		do 6...	do 21	
1872	April 1...	do 17...		do 18...	do 19	
1873	do 1...	do 15...		do 18...	Jan. 12 '74	
1874	March 10...	do 28...		do 17...	Dec. 24	
1875	April 9...	do 4...		do 29...	do 18	
1876	Jan. 1...	do 4...		do 20...	do 18	
1877	April 1...	do 31...		April 7...	Jan. 12 '78	
1878	March 1...	do 31...		March 20...	Dec. 24	
1879	April 3...	do 24...		do 20...	do 26	
1880	March 1...	do 3...		do 6...	do 18	
1881	April 15...	do 31...		April 4...	Jan. 10 '82	
1882	March 1...	do 18...		March 11...	do 8 '83	
1883	do 9...			April 5...		

LAKE HURON—Continued.

Years.	Goderich, Ont.			Kincardine, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867	April 20...	Dec. 2...	Depth of water inside piers 14 to 15 feet. Just outside of piers in rough weather only about 12 feet. Harbour clear of ice at dates named, no arrivals for a few days later.	.....	.....	Up to 1875 this was an outport of Goderich and no record was kept. The dates are of the first arrival of vessels and the departure of the last from harbour. Depth of water in inner harbour 9 feet and at entrance about 11 feet.
1868	May 1...	do 6...		.....	.....	
1869	April 25...	do 3...		.....	.....	
1870	do 18...	Nov. 28...		.....	.....	
1871	May 2...	Dec. 5...		.....	.....	
1872	April 15...	Nov. 25...		.....	.....	
1873	do 12...	Dec. 4...		.....	.....	
1874	do 30...	Nov. 30...		.....	.....	
1875	May 1...	Dec. 10...		March 27...	Nov. 20...	
1876	do 4...	do 1...		May 5...	Oct. 27...	
1877	April 20...	do 4...		March 2...	Nov. 12...	
1878	do 6...	do 10...		April 26...	do 16...	
1879	do 12...	do 1...		do 13...	do 20...	
1880	March 20...	do 10...		May 7...	do 5...	
1881	May 1...	do 1...		April 28...	do 23...	
1882	April 3...	do 7...		March 27...	do 18...	
1883	do 26...			April 23...		

No. 1.—STATEMENT showing the dates of the Opening and Closing of Navigation,  
&c.—Continued.

GEORGIAN BAY—LAKE HURON.

Years.	Owen Sound, Ont.			Collingwood, Ont.		
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.
1867...	April 16	Nov. 29	Depth at low water, 10	April 20	Nov. 28	The depth in the har-
1868...	do 15	Dec. 2	feet 6 inches. Water level	do 20	Dec. 5	bour at low water from
1869...	do 24	Nov. 28	fluctuates from 18 to 24	do 28	do 2	1867 to 1877 was 11 feet
1870...	do 18	Dec. 5	inches in height.	do 22	do 10	6 inches; 1878-79, 12 feet;
1871...	March 22	do 4		do 1	do 6	1880-81, 12 feet 6 inches;
1872...	May 9	do 1		May 3	Nov. 28	1882-83, 13 feet.
1873...	do 7	do 11		do 7	do 24	
1874...	do 4	Nov. 31		do 9	do 26	
1875...	do 15	Dec. 2		do 9	do 22	
1876...	do 4	do 6		do 2	Dec. 1	
1877...	do 1	do 8		April 20	do 8	
1878...	March 19	do 14		March 18	Nov. 27	
1879...	April 22	do 4		May 2	Dec. 9	
1880...	March 2	do 1		April 14	do 2	
1881...	April 26	do 31		May 9	Nov. 29	
1882...	March 20	do 4		April 18	Dec. 3	
1883...	April 26			do 17		

LAKE SUPERIOR.

Years.	Sault Ste. Marie, Ont.			Port Arthur, Ont.			Lakes on Dawson Route, between Port Arthur and Lake of the Woods.
	Opened.	Closed.	Remarks.	Opened.	Closed.	Remarks.	
1867	May 4	Dec. 3	Vessels drawing 16 ft. could pass through the enlarged canal and new lock and vessels not drawing more than about 13 ft. 8 inches through the St. Mary's River, could pass from Lake Superior to Lake Huron and vice versa up to 1862. The deepening of the river throughout was being completed in 1863.	.....	.....	The bay is very deep, being as much as 200 or 300 fathoms in some places. The deepest part is by Hare Island, near Thunder Cape. Depth of water at docks, 14 feet. The last steamer in 1882 cleared on 27th December, but harbor was open for several days after. Earliest arrival was a tug from Duluth, on 17th March, 1877.	Navigation is said to open generally about 25th May. Navigation is said to close generally about 20th October.
1868	do 2	do 3		.....	.....		
1869	do 4	Nov. 29		.....	.....		
1870	April 29	Dec. 1		.....	.....		
1871	May 8	Nov. 29		.....	.....		
1872	do 11	do 26		.....	.....		
1873	do 5	do 18		.....	.....		
1874	do 12	Dec. 2		.....	.....		
1875	do 12	do 2		.....	.....		
1876	do 8	Nov. 26		.....	.....		
1877	do 2	do 30		.....	.....		
1878	April 8	Dec. 3		May 16	Dec. 23		
1879	May 2	do 3		April 28	do 27		
1880	April 28	Nov. 15		March 17	Jan. 10, '78		
1881	do 20	Dec. 5		April 23	Dec. 30		
1882	do 21	do 5		do 25	do 28		
1883	May 2			do 28	do 30		
				do 25	do 31		
				do 28	do 27		
				May 8			

No. 2.—STATEMENT of the dates of Opening and Closing of Navigation at Quebec, Montreal, Kingston and Toronto, from 1814 to 1882.

QUEBEC.			MONTREAL.		KINGSTON.		TORONTO.	
Years.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.
1814	April 28	Dec. 7						
1815	do 28	do 5						
1816	do 23	Nov. 29						
1817	May 6	Dec. 5						
1818	April 27	do 1						
1819	do 30	do 7						
1820	do 24	do 1						
1821	May 3							
1822	April 29	Dec. 3						
1823	do 25							
1824	do 20	Dec. 11						
1825	do 19							
1826	do 22	Dec. 21						
1827	do 14							
1828	do 12							
1829	do 18							
1830	do 17	Dec. 4						
1831	do 21	Nov. 30						
1832	do 29	do 30			April 27	Dec. 19		
1833	do 19	do 25			do 7	Jan. 1, '34		
1834	do 18	Dec. 9			March 19	Dec. 22		
1835	May 4	do 1			April 6	do 31		
1836	do 10	do 1			do 23	do 26		
1837	do 2	do 12			do 11	Jan. 16, '38		
1838	do 1	Nov. 26			do 6	Dec. 18		
1839	April 23	Dec. 19			do 8	do 26		
1840	do 21	do 2			March 19	do 23		
1841	May 4	do 14			April 23	do 31		
1842	April 26	do 2			March 24	do 31		
1843	May 5	do 1			April 25	Jan. 3, '44		
1844	April 23	Nov. 29			March 9	do 12, '45		
1845	do 23	Dec. 2			April 2	do 9, '46		
1846	do 14	do 9			March 31			
1847	May 11	do 3			April 11	Jan. 6, '48		
1848	April 18	do 5			do 3	Dec. 30		
1849	do 24	do 7			do 3	do 31		
1850	do 26	do 10			do 5	do 26		
1851	do 22	do 5			do 2	do 22		
1852	do 30	do 19			do 19	Jan. 14, '53		
1853	do 26	do 3			do 4	do 5, '54		
1854	May 5	do 5	April 25	Dec. 6	do 10	do 13, '55		
1855	do 8	Nov. 27	do 28	do 12	do 17	do 1, '56	April 2	Dec. 19
1856	April 22	Dec. 2	do 24	do 3	do 8	Dec. 31	do 17	do 22
1857	do 28	do 4	do 18	do 13	do 2	Feb. 2, '58	Feb. 27	do 30
1858	do 16	do 3	do 9	do 12	do 26	Jan. 8, '59	Mar. 4	do 21
1859	do 26	Nov. 29	do 4	do 11	do 15	Dec. 25	Feb. 7	do 30
1860	do 20	Dec. 8	do 10	do 7	do 12	Jan. 10, '61	Jan. 10	do 31
1861	do 26	do 17	do 24	do 22	do 8	do 4, '62	do 2	do 31
1862	do 11	do 5	do 23	do 7	do 14	do 17, '63	do 2	do 30
1863	May 1	do 4	do 25	do 12	do 16	do 1, '64	do 7	do 21
1864	April 19	do 13	do 13	do 11	do 5	do 4, '65	Feb. 3	do 29
1865	do 18	do 9	do 10	do 16	March 28	do 5, '66	Mar. 25	do 30
1866	do 27	do 15	do 19	do 15	April 11	do 5, '67	April 3	do 26
1867	do 17	Nov. 29	do 22	do 6	do 8	Dec. 18	Mar. 28	do 9
1868	do 23	do 28	do 17	do 9	March 31	do 24	April 6	do 12
1869	do 27	do 27	do 25	do 6	April 17	Jan. 8, '70	do 1	do 3
1870	do 16	Dec. 2	do 18	do 18	do 13	Dec. 31	do 3	do 24
1871	do 22	Nov. 27	do 8	do 1	March 16	do 25	Mar. 11	Nov. 30
1872	do 30	do 26	May 1	do 8	April 22	do 21	April 12	Dec. 10
1873	do 28	do 22	April 25	Nov. 26	do 24	Jan. 14, '74	do 14	Nov. 26
1874	do 28	do 25	do 25	Dec. 13	March 28	do 5, '75	Mar. 16	Dec. 20

No. 2.—STATEMENT of the dates of Opening and Closing of Navigation at Quebec, Montreal, Kingston and Toronto, from 1814 to 1882—*Concluded.*

QUEBEC.			MONTREAL.		KINGSTON.		TORONTO.	
Years.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.
1875	April 29 .....	Nov. 23 .....	May 3...	Nov. 29...	April 19.....	Dec. 23.....	April 16...	Nov. 30
1876	May 6 .....	do 24.....	April 27...	Dec. 10...	do 18.....	do 20.....	do 11...	Dec. 9
1877	April 25.....	do 26.....	do 17...	Jan. 2, '78	do 9.....	Jan. 8, '78	March 25...	do 19
1878	do 20.....	do 25.....	March 30...	Dec. 23...	March 11.....	do 2, '79	do 9...	do 16
1879	do 29.....	do 28.....	April 24...	do 19...	April 21.....	Dec. 28.....	do 25...	do 24
1880	do 30 .....	do 27.....	do 17...	do 3...	March 23.....	do 21.....	Feb. 19...	do 8
1881	May 1.....	do 24.....	do 21...	Jan. 2, '82	April 12.....	Jan. 12, '82	April 16...	do 19
1882	do 5.....	do 25.....	do 11...	Dec. 9...	March 7.....	Jan. 4, '83	Feb. 27...	do 9

See Appendix No. 47 of General Report of 1867.

**No. 3.—COMPARATIVE Statement of the dates of Opening and Closing of the River St. Charles and River St. Lawrence, at Quebec.**

In the Year.	The ice of the St. Charles River broke up on the	The St. Charles River froze over on the	The Navigation of the St. Lawrence opened on the	The St. Lawrence Navigation closed on the
1860.....		Dec. 18.....		
1861.....	April 16.....			
1862.....				
1863.....	May 1.....	Dec. 10.....		
1864.....	April 10.....	Nov. 10.....		
1865.....		Dec. 20.....		
1866.....	April 20.....	do 5.....	April 26.....	Nov. 24.....
1867.....	do 29.....	Nov. 18.....		do 26.....
1868.....	do 23.....	Dec. 3.....	April 24.....	Dec. 1.....
1869.....	do 24.....	do 17.....	do 30.....	Nov. 30.....
1870.....		Nov. 29.....	do 23.....	do 22.....
1871.....	April 17.....		do 17.....	Dec. 1.....
1872.....	do 22.....	Nov. 19.....	do 27.....	Nov. 22.....
1873.....	do 27.....		do 29.....	do 24.....
1874.....	May 8.....		May 9.....	
1875.....	do 10.....		April 26.....	Nov. 23.....
1876.....	do 5.....	Nov. 26.....	May 6.....	
1877.....	April 18.....	do 27.....		
1878.....	do 5.....	do 28.....		
1879.....	do 10.....	do 29.....		
1880.....	do 19.....	do 29.....		
1881.....	do 12.....	do 28.....		
1882.....	do 25.....	do 28.....		

The dates of opening and closing from 1860 to 1876, inclusive, were recorded by Mr. Simons, who has acted for a long time as engineer to the Quebec Harbour Commissioners; they are registered at the local office of the Marine and Fisheries Department, at Quebec. Those from 1876 to 1882 were forwarded by A. H. Verret, Secretary-Treasurer of Harbour Commissioners of Quebec, 19th April, 1883. See No. 33,758.

, G. F. B.

No. 4.—STATEMENT showing the dates of the Opening and Closing of Navigation at the Port of Quebec, in each year, from 1830 to 1882, inclusively, compiled by Mr. N. L. G. Belleau, Keeper of the Shipping Register, Custom House, Quebec.

Years.	Arrivals from Montreal Steamers.	Arrivals from Sea Ships.	Sailed for Sea.	Years.	Arrivals from Montreal Steamers.	Arrivals from Sea Ships.	Sailed for Sea.
1830.....	April 17.....	April 26.....	Dec. 4.....	1857.....	April 17.....	April 28.....	Nov. 24
1831.....	do 21.....	do 16.....	Nov. 30.....	1858.....	do 18.....	do 29.....	do 25
1832.....	do 29.....	May 4.....	do 30.....	1859.....	do 22.....	do 29.....	do 28
1833.....	do 18.....	do 10.....	do 25.....	1860.....	do 26.....	do 28.....	do 26
1834.....	do 18.....	do 6.....	do 24.....	1861.....	do 26.....	do 22.....	do 26
1835.....	May 4.....	do 2.....	do 25.....	1862.....	do 30.....	do 16.....	do 29
1836.....	do 11.....	do 11.....	do 26.....	1863.....	May 3.....	May 3.....	do 27
1837.....	do 1.....	April 29.....	do 18.....	1864.....	April 21.....	April 27.....	do 30
1838.....	April 28.....	May 3.....	do 20.....	1865.....	do 21.....	do 29.....	do 28
1839.....	do 21.....	do 8.....	do 23.....	1866.....	do 26.....	do 28.....	Dec. 1
1840.....	do 19.....	April 25.....	do 29.....	1867.....	May 3.....	do 17.....	Nov. 29
1841.....	May 1.....	do 29.....	do 28.....	1868.....	April 28.....	do 23.....	do 28
1842.....	April 21.....	May 3.....	do 28.....	1869.....	do 30.....	do 27.....	do 27
1843.....	May 5.....	April 18.....	do 28.....	1870.....	do 25.....	do 16.....	Dec. 2
1844.....	April 24.....	May 3.....	do 23.....	1871.....	do 18.....	do 22.....	Nov. 27
1845.....	do 25.....	do 1.....	do 26.....	1872.....	May 6.....	do 30.....	do 26
1846.....	do 17.....	April 24.....	do 27.....	1873.....	do 2.....	do 28.....	do 22
1847.....	May 8.....	May 8.....	do 26.....	1874.....	do 10.....	do 28.....	do 25
1848.....	April 6.....	do 1.....	do 21.....	1875.....	do 9.....	do 29.....	do 23
1849.....	do 25.....	April 28.....	do 25.....	1876.....	do 9.....	May 6.....	do 24
1850.....	do 25.....	do 28.....	do 28.....	1877.....	April 26.....	April 25.....	do 26
1851.....	do 22.....	do 20.....	do 29.....	1878.....	do 21.....	do 20.....	do 25
1852.....	do 30.....	do 15.....	Dec. 4.....	1879.....	May 2.....	do 29.....	do 28
1853.....	do 23.....	do 24.....	Nov. 26.....	1880.....	do 1.....	do 30.....	do 27
1854.....	May 5.....	do 29.....	do 29.....	1881.....	April 27.....	May 1.....	do 24
1855.....	do 6.....	May 6.....	do 22.....	1882.....	do 28.....	do 5.....	do 25
1856.....	April 27.....	April 20.....	do 23.....				

For arrivals and departures of vessels at Quebec, Montreal, Kingston and Toronto prior to 186 see Appendix No. 48 of General Report of that year.

For information respecting the formation of ice at Quebec, and inundations of the St. Lawrence between Montreal and Quebec, see,—

Report of a Special Committee of the Legislative Assembly of Canada on the formation of the ice bridge below Quebec. Printed by order of the Legislature, 1853;

Report respecting the formation, motion, breaking up, &c., of the ice in the Harbour of Quebec, R. Steckel, Assistant Engineer. General Report on Public Works 1867 to 1882, page 336;

Report by J. B. Normand, one of the Commissioners appointed to enquire into the cause of the floods which occur periodically in the River St. Lawrence between Montreal and Quebec. General Report Public Works 1867 to 1882, page 448.

## No. 5.—PORT OF MONTREAL.

MEMORANDUM TAKEN FROM THE HARBOUR MASTER'S REPORTS, GIVING THE DATES OF THE OPENING AND CLOSING OF NAVIGATION FROM 1864 TO DEC. 31st, 1881.

- 1864.—The ice in the harbour began to break and move on the 7th of April; on the 13th, river was clear. Close of navigation, Dec. 10th.
- 1865.—On the 1st of January the water gradually rose, on the 14th the ice shoved, on the 15th the ice remained stationary.
- 1866.—Opening of navigation, April 19th. On the 5th January, 1866, the river was full of ice; on the 6th the ice became stationary.
- 1867.—On the 1st January the water was level with the wharves, ice forming fast; on the 9th ice became stationary. The first shove of the ice took place on the 14th April; on 22nd the harbour was clear of ice.
- 1868.—The winter was unusually cold, the river was frozen at an early date; teams crossed on the 16th December, 1867. On the 19th March, 1868, ice shoved; on the 4th April the ice shoved heavily opposite the city; on the 14th and 15th the ice kept moving, on the 17th the harbour was clear.
- 1869.—Dec. 28th, the river was frozen over early; on this date the first team crossed to St. Lambert. In the beginning of 1869 the ice was considered firm for the winter. On the 13th April the ice shoved, on the 18th shoved again, on the 19th it shoved, flooding Griffintown, which continued until the 23rd; at 10 a.m. ice below gave way, on 25th the harbour clear of ice.
- 1870.—On the 1st January channel opposite city free of ice; on the 8th crossed on foot; on 9th ice shoved, no crossing until 13th, teams crossed on the 15th; on the 17th thaw set in, which lasted some time. On 31st March the ice opposite the city was bad; the first shove on the 9th April; shoved on 10th and 11th; on the 17th harbour clear of ice.
- 1871.—On the 4th January river frozen over; on 6th became mild, ice shoved; on 11th teams crossing. On 15th March a slight shove, 17th shoved again; on 31st last crossing; 3rd April the ice kept moving, on 10th harbour clear.
- 1872.—When the year commenced the river was frozen and teams crossing. On April 18th first shove, on 28th harbour clear, on 1st May vessels arrived in port.
- 1873.—On the 1st January the river was frozen over and ice stationary, teams crossing. On 11th April the ice shoved, and continued to do so daily until the 21st, when it gave way; on 25th Str. "William" arrived from Sorel.
- 1874.—On 17th January the river was frozen over, on 21st teams crossed from Longueuil. April 18th first shove, on 23rd harbour free from ice, 25th a number of small craft arrived in port. The ice bridge at Cape Rouge held firm until the 9th of May.
- 1875.—On the 1st January the river opposite the city was full of ice, teams crossed below Hochelaga on the last day of the year 1874; on 4th January, 1875, ice became stationary. The winter was the coldest that had been experienced for many years. The first ice shoved on the 24th April, on 29th harbour clear; on the 1st May a may-pole was placed on the ice opposite Longueuil; on 3rd river vessels arrived from Boucherville, on the 7th ice bridge at Cape Rouge gave way. On the 5th December ice became stationary; on 21st teams crossed to the city, the earliest on record.
- 1876.—When January commenced the river was frozen and ice good. On April 12th ice got bad, on 16th first shove, and shoved daily until 26th; on 27th several vessels arrived from Boucherville. On 19th December the ice was good, persons crossing on foot, 23rd teams crossing.
- 1877.—When the year commenced the river was frozen over. The weather in April was fine and mild; on the 5th the ice began to get bad, on the 8th the first shove

and moved downwards, on the 14th the channel was clear as far as Hochelaga, on the 17th the tug "Francis" arrived from Boucherville. The weather was mild this fall, the navigation was still open on the 31st of December.

1878.—On the 1st of January the Longueuil Ferry, still running, in the afternoon left the harbour with a party on a pleasure excursion to Boucherville; on the 17th people crossed the ice on foot, on 24th good crossing. The 7th of January was the coldest day of the winter, at 8 a.m. 15° below zero. On the 1st of February roads were made; on the 18th a road was made to Laprairie, and on the last day of the month these roads were considered unsafe. March 1st, cold snap; on the 2nd teams again crossed to St. Lambert and Laprairie, on the 12th again abandoned, on the 16th first open water, on 18th first shove of ice, on 22nd channel clear as far as Point-aux-Trembles, on the 29th the steamer "Montarville" came into the harbour but had to return to Boucherville, on the 29th tug "St. Francis," arrived in port. On the last day of the year the river was full of drift ice.

1879.—On the first day of January the weather was fine, in the afternoon a boat's crew descended the Lachine Rapids in safety; on the 25th the river was full of ice; on 26th teams crossed at Longueuil; on the 1st February a road was made from St. Lambert; on the 13th February a road was made from Laprairie. On the 12th April the ice shoved; after the 15th the ice kept daily moving downwards; on the 18th the ice became so closely packed and stationary that the people crossed on foot; on 23rd steamer "St. Lambert" arrived in port from Boucherville. On the 22nd December it was very cold, 22° below zero; on the 25th river full of ice; on 27th crossing on foot, teams crossing at Longueuil.

1880.—On the 1st January weather fine, at 8 a.m., 4° below zero, river opposite city full of ice, teams crossing below Longueuil; on the 2nd crossing on foot to St. Lambert; on the 13th commenced laying a railroad track on the ice from Hochelaga to Longueuil, completed on the 30th; on the following day the road was opened. On the 1st of April ice began to get bad, on the same day a commencement was made to remove the ice bridge railroad; April 5th first shove of the ice; on the 6th ice shoved again; on 7th a very heavy shove on Island Mouton, it was piled up 44 feet. the water in the harbour at that time was 17 feet above summer level; on the 13th a large quantity of ice left the harbour; on the 17th the river craft arrived from Boucherville; on the 29th April the ice bridge at Cape Rouge gave way. On the 3rd December the river was full of ice, Longueuil ferry left for winter quarters; on the 29th roads were commenced on the ice to St. Lambert.

1881.—The new year commenced with fine weather. On the 5th railway cars commenced crossing at Longueuil. On the 8th April the ice commenced breaking up; 13th, channel opposite city clear; on 19th, tug "C. W. Francis" arrived in port, being the first arrival of the season; on the 27th, SS. "Peruvian" arrived from Sorel where she had wintered. Dec. 31st, fine mild weather; the year closed with open navigation, the *Longueuil* making regular trips.

1882—Navigation opened on 11th April, and closed on 9th December.

THOMAS HOWARD,  
Harbour Master.

MONTREAL, 17th April, 1883.

See report of Chief Engineer of Public Works on the St. Lawrence Bridge and Manufacturing Company's scheme for proposed works, dated 19th March, 1883, published same year.

NOTE.—Cars crossed the ice last year (1882) from February 4th to March 4th; and this year from January 15th to April 3rd. See telegram from P. Howard, Harbour Master, dated 20th November, 1883.

No. 6.—STATEMENT showing the Highest and Lowest Water in Toronto Harbour from 1867 to 1882. Information furnished by the Harbour Master of the Port.

Years.	Highest Water.			Lowest Water.		
	Date.	inches	Above zero.	Date.	inches	Below zero.
1867.....	June 17th .....	38	do	December 26th.....	5	do
1868.....	July 1st .....	17	do	February 6th.....	12	do
1869.....	do 28th.....	27½	do	do 5th.....	2	do
1870.....	May 6th.....	47	do	December 29th.....	12	above zero.
1871.....	do 4th.....	26	do	do 29th.....	5½	below zero.
1872.....	June 22nd.....	3½	do	March 19th.....	16½	do
1873.....	May 26th.....	23	do	January 9th.....	15	do
1874.....	June 11th.....	29	do	December 30th.....	5	do
1875.....	do 24th.....	12	do	February 17th.....	15	do
1876.....	July 5th.....	41	do	January 10th.....	2	do
1877.....	April 28th.....	18½	do	November 18th.....	1½	do
1878.....	December 14th.....	25	do	January 5th.....	1	do
1879.....	January 1st.....	22	do	October 30th.....	6½	do
1880.....	June 4th.....	19	do	December 30th.....	7	do
1881.....	July 8th.....	15	do	do 7th.....	7	do
1882.....	June 30th.....	29½	do	January 3rd.....	3	do

NOTE.—In the winter of 1850-51 the height of the water stood at 9 feet at a certain place at the Queen's Wharf. This I established as my zero for low water.

8th January, 1857.

HUGH RICHARDSON,  
Harbour Master.

No. 7.—STATEMENT showing dates of Opening and Closing of the Trent River Navigation, from 1867 to 1882.

Years.	Opened.	Closed.	No of Days Open.
1867.....	.....	November 15th.....	.....
1868.....	May 1st.....	do 14th.....	198
1869.....	do 10th.....	December 2nd.....	207
1870.....	do 9th.....	November 24th.....	200
1871.....	April 10th.....	do 10th.....	215
1872.....	do 29th.....	do 11th.....	197
1873.....	do 16th.....	do 24th.....	228
1874.....	do 15th.....	do 5th.....	205
1875.....	do 16th.....	do 29th.....	228
1876.....	do 19th.....	do 24th.....	220
1877.....	do 26th.....	December 25th.....	244
1878.....	May 1st.....	November 25th.....	209
1879.....	April 29th.....	December 8th.....	224
1880.....	do 7th.....	November 10th.....	218
1881.....	do 26th.....	do 25th.....	214
1882.....	March 15th.....	do 18th.....	249

Furnished by Thomas D. Belcher, Superintending Engineer, 14th April, 1883, as per No. 33,558.

No. 8.—LAKE CHAMPLAIN AND ERIE CANAL ROUTES.—The following table, taken from the Report of the Canal Commissioners of the State of New York, shows the date of Opening and Closing of the Hudson River, from 3rd March, 1824, to 1882; Opening and Closing of Champlain Canal, from 30th April, 1824, to 1882; also, the time of Opening and Closing the Erie Canal, from 1824 to 1882, and the Opening of Lake Erie, from 1827 to 1882.

HUDSON RIVER.				CHAMPLAIN CANAL.				ERIE CANAL.				LAKE ERIE.	
Years.	Opened.	Closed.	No. of Days Open.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.	No. of Days Open.		Opened.	
1824	March 3...	Jan. 5...	309	April 30...	Dec. 4...	April 30...	Dec. 4...	April 30...	Dec. 4...	219			
1825	do 6...	Dec. 13...	283	do 12...	do 5...	do 12...	do 5...	do 12...	do 5...	238			
1826	Feb. 25...	do 24...	302	do 20...	do 18...	do 20...	do 18...	do 20...	do 18...	243			
1827	March 20...	Nov. 25...	251	do 22...	do 18...	do 22...	do 18...	do 22...	do 18...	241	April 21...	1827	
1828	Feb. 8...	Dec. 28...	220	March 27...	do 20...	March 27...	do 20...	March 27...	do 20...	269	do 1...	1828	
1829	April 1...	Jan. 11...	286	May 2...	do 17...	May 2...	do 17...	May 2...	do 17...	230	May 10...	1829	
1830	March 15...	Dec. 25...	283	April 20...	do 17...	April 20...	do 17...	April 20...	do 17...	242	do 5...	1830	
1831	do 15...	do 6...	263	do 16...	do 1...	do 16...	do 1...	do 16...	do 1...	230	do 8...	1831	
1832	do 25...	do 21...	289	do 25...	do 21...	do 25...	do 21...	do 25...	do 21...	241	April 27...	1832	
1833	do 21...	do 13...	277	do 19...	do 12...	do 19...	do 12...	do 19...	do 12...	238	do 23...	1833	
1834	Feb. 29...	do 15...	291	do 17...	do 12...	do 17...	do 12...	do 17...	do 12...	240	do 6...	1834	
1835	March 25...	Nov. 30...	268	do 15...	Nov. 30...	do 15...	Nov. 30...	do 15...	Nov. 30...	230	May 8...	1835	
1836	April 4...	Dec. 7...	248	do 25...	do 26...	do 25...	do 26...	do 25...	do 26...	216	April 27...	1836	
1837	March 27...	do 14...	261	do 20...	Dec. 9...	do 20...	Dec. 9...	do 20...	Dec. 9...	234	May 16...	1837	
1838	do 19...	Nov. 25...	257	do 12...	Nov. 25...	do 12...	Nov. 25...	do 12...	Nov. 25...	228	March 31...	1838	
1839	do 25...	Dec. 18...	286	do 20...	Dec. 16...	do 20...	Dec. 16...	do 20...	Dec. 16...	241	April 11...	1839	
1840	Feb. 25...	do 5...	285	do 20...	do 9...	do 20...	do 9...	do 20...	do 3...	228	do 27...	1840	
1841	March 24...	do 19...	286	do 24...	Nov. 28...	do 25...	Nov. 30...	do 25...	Nov. 30...	221	do 14...	1841	
1842	Feb. 4...	Nov. 28...	308	do 20...	do 28...	do 20...	do 28...	do 20...	do 28...	222	March 7...	1842	
1843	April 13...	Dec. 10...	242	May 1...	do 30...	May 1...	do 30...	May 1...	do 30...	214	May 6...	1843	
1844	March 18...	do 17...	278	April 18...	do 26...	April 18...	do 26...	April 18...	do 26...	222	March 14...	1844	
1845	Feb. 24...	do 3...	283	do 15...	do 29...	do 15...	do 29...	do 15...	do 29...	228	April 3...	1845	
1846	March 18...	do 14...	275	do 16...	do 25...	do 16...	do 25...	do 16...	do 25...	224	do 11...	1846	
1847	April 7...	do 25...	263	May 1...	do 30...	May 1...	Nov. 30...	May 1...	Nov. 30...	214	do 23...	1847	
1848	March 22...	do 27...	292	do 1...	Dec. 19...	do 1...	Dec. 9...	do 1...	Dec. 9...	223	do 9...	1848	
1849	do 19...	do 26...	286	do 1...	do 5...	do 1...	do 5...	do 1...	do 5...	219	March 25...	1849	
1850	do 10...	do 17...	282	April 22...	do 11...	April 22...	do 11...	April 22...	do 11...	234	do 25...	1850	
1851	Feb. 25...	do 14...	293	do 15...	do 5...	do 15...	do 5...	do 15...	do 5...	235	April 2...	1851	
1852	March 28...	do 22...	270	do 20...	do 16...	do 20...	do 16...	do 20...	do 16...	239	do 20...	1852	
1853	do 23...	do 21...	274	do 20...	do 20...	do 20...	do 20...	do 20...	do 20...	245	do 14...	1853	
1854	do 17...	do 8...	266	May 1...	do 3...	May 1...	do 3...	May 1...	do 3...	217	do 29...	1854	
1855	do 27...	do 20...	268	do 1...	do 10...	do 1...	do 10...	do 1...	do 10...	224	do 21...	1855	
1856	April 11...	do 14...	248	do 5...	do 4...	do 5...	do 4...	do 5...	do 4...	214	May 2...	1856	
1857	Feb. 27...	do 27...	303	do 6...	do 15...	do 6...	do 15...	do 6...	do 15...	223	April 27...	1857	
1858	March 20...	do 17...	273	April 28...	do 8...	April 28...	do 8...	April 28...	do 8...	225	do 15...	1858	
1859	do 13...	do 10...	273	do 15...	do 12...	do 15...	do 12...	do 15...	do 12...	242	do 7...	1859	
1860	do 6...	do 14...	283	do 25...	do 12...	do 25...	do 12...	do 25...	do 12...	232	do 17...	1860	
1861	do 5...	do 23...	294	May 1...	do 10...	May 1...	do 10...	May 1...	do 10...	224	do 13...	1861	
1862	April 4...	do 19...	259	do 1...	do 10...	do 1...	do 10...	do 1...	do 10...	224	do 15...	1862	
1863	do 3...	do 11...	253	do 1...	do 9...	do 1...	do 9...	do 1...	do 9...	223	do 3...	1863	
1864	March 11...	do 12...	277	April 30...	do 9...	April 30...	do 8...	April 30...	do 8...	223	do 13...	1864	
1865	do 22...	do 16...	270	May 1...	do 12...	May 1...	do 12...	May 1...	do 12...	226	do 26...	1865	
1866	do 20...	do 15...	271	do 1...	do 12...	do 1...	do 12...	do 1...	do 12...	226	do 28...	1866	
1867	do 26...	do 8...	257	do 6...	do 20...	do 6...	do 6...	do 20...	do 6...	209	do 21...	1867	
1868	do 24...	do 5...	252	do 4...	do 7...	do 4...	do 7...	do 4...	do 7...	217	do 19...	1868	
1869	April 5...	do 9...	248	do 6...	do 18...	do 6...	do 6...	do 10...	do 6...	218	May 1...	1869	
1870	March 31...	do 17...	261	do 10...	do 8...	do 10...	do 8...	do 10...	do 8...	213	April 16...	1870	
1871	do 12...	Nov. 29...	263	April 24...	do 1...	April 24...	do 1...	April 24...	do 1...	220	do 1...	1871	
1872	April 7...	Dec. 9...	247	May 13...	do 1...	May 13...	do 1...	May 13...	do 1...	202	May 6...	1872	
1873	do 16...	Nov. 22...	221	do 15...	do 5...	do 15...	do 5...	do 15...	do 5...	205	April 29...	1873	
1874	March 19...	Dec. 12...	269	do 5...	do 5...	do 5...	do 5...	do 5...	do 5...	205	do 18...	1874	
1875	April 13...	Nov. 29...	229	do 18...	Nov. 30...	do 18...	Nov. 30...	do 18...	Nov. 30...	197	May 12...	1875	
1876	do 1...	Dec. 2...	245	do 4...	Dec. 1...	do 4...	Dec. 1...	do 4...	Dec. 1...	211	do 4...	1876	

No. 8.—LAKE CHAMPLAIN AND ERIE CANAL ROUTES—*Concluded.*

HUDSON RIVER.				CHAMPLAIN CANAL.				ERIE CANAL.				LAKE ERIE.	
Years.	Opened.		Closed.	No. of Days Opened.	Opened.		Closed.	Opened.		Closed.		No. of Days Open.	Opened.
1877	March 30...	Dec. 31...	277	May 8...	Dec. 7...	May 8...	Dec. 7...	214	April 17...	1877			
1878	do 14...	do 20...	282	April 15...	do 7...	April 15...	do 11...	241	March 24...	1878			
1879	April 4...	do 20...	261	May 8...	do 6...	May 8...	do 6...	213	April 24...	1879			
1880	March 5...	Nov. 25...	266	April 16...	Nov. 30...	April 16...	Nov. 21...	220	March 19...	1880			
1881	do 21...	June, 2, '81	268	May 12...	Dec. 8...	May 12...	Dec. 8...	211	May 1...	1881			
1882	do 8...	Dec. 5...	273	April 11...	do 7...	April 11...	do 7...	241	March 20...	1882			

## No. 9.—STATEMENT showing the Opening and Closing of the St. Ours Lock and Chambly Canal.

Years.	ST. OURS LOCK.			CHAMBLY CANAL.		
	Opened.	Closed.	No. of days open.	Opened.	Closed.	No. of days open.
1831						
1832						
1833						
1834						
1835						
1836						
1837						
1838						
1839						
1840						
1841						
1842						
1843						
1844				April 17	Nov. 17	225
1845				do 21	do 25	219
1846				do 22	do 21	214
1847				May 18	do 29	196
1848				April 19		
1849				May 21	Dec. 1	195
1850	April 14	Dec. 6	237	April 19	do 5	231
1851	do 9	Nov. 22	228	May 20	Nov. 19	184
1852	do 10	Dec. 13	248	April 28	Dec. 14	231
1853	do 13	do 4	236	do 28	do 2	219
1854	do 19	do 4	230	May 2	do 2	215
1855	do 23	Nov. 30	222	do 2	Nov. 29	212
1856	do 18	Dec. 2	229	April 28	Dec. 1	218
1857	do 17	do 4	232	May 7	do 4	212
1858	do 9	Nov. 19	225	April 27	Nov. 19	207
1859	do 5	Dec. 3	243	do 15	Dec. 3	233
1860	do 4	do 5	246	do 22	do 2	215
1861	do 16	do 3	228	do 25	do 3	223
1862	do 25	do 2	222	May 6	do 4	213
1863	do 29	do 3	219	do 1	do 8	222
1864	do 7	do 9	247	April 25	do 7	227
1865	do 16	do 9	238	do 25	do 8	228
1866	do 9	do 12	248	May 1	do 12	226
1867	do 26	do 2	221	do 1	do 5	219
1868	March 30	do 2	248	do 5	do 2	212
1869	April 28	do 1	217	April 28	Nov. 29	215
1870	do 12	do 5	238	May 4	Dec. 3	214
1871	March 20	Nov. 28	254	do 3	Nov. 28	210
1872	April 20	Dec. 1	226	do 1	Dec. 2	216
1873	May 1	Nov. 16	200	April 25	Nov. 20	210
1874	April 16	do 25	224	do 25	do 25	215
1875	do 16	do 22	221	May 1	do 22	206
1876	do 19	do 30	226	do 1	do 28	212
1877	do 10	Dec. 5	240	do 1	Dec. 2	216
1878	do 1	do 12	256	do 1	do 6	220
1879	do 23	Nov. 24	216	do 5	do 6	216
1880	do 7	do 22	230	April 20	Nov. 25	220
1881	do 1	do 25	239	May 2	do 28	211
1882	do 13	do 28	230	do 2	do 30	213

No. 19.—SUMMARY of the Opening and Closing of Hayes River, opposite York Factory, from the Year 1828 to 1880, a period of 52 Years, according to report of Mr. Wood, of York Factory.

Year.	Date of Opening.	Date of Closing.	Remarks.
1828.....	June 1	November 15	Geese seen 29th April.
1829.....	May 10	do 11	
1830.....	do 17	December 2	
1831.....	do 22	November 28	
1832.....	do 25	do 26	
1833.....	do 13	do 22	
1834.....	do 27	do 20	
1835.....	do 24	do 18	
1836.....	do 16	do 29	
1837.....	do 11	do 25	do 26th do
1838.....	do 23	do 22	do 30th do
1839.....	do 22	do 19	do 3rd May.
1840.....	do 12	do 16	do 1st do
1841.....	do 10	do 13	do 26th April.
1842.....	do 17	do 11	do 22nd do
1843.....	do 29	do 16	do 5th May.
1844.....	do 13 to 20	do 26	do 21st April.
1845.....	do 22	do 24	The opening of the river this year is rather doubtful, some say 9th.
1846.....	do 7 or 9	do 25	
1847.....	do 9	do 15	
1848.....	do 21	do 28	
1849.....	do 18 to 24	do 27	
1850.....	do 31	do 28	
1851.....	do 31	December 9	
1852.....	do 16	November 8	
1853.....	do 26 to 30	do 9	
1854.....	do 23	do 16	
1855.....	do 21 to 24*	do 24	*Rather doubtful if it was not the 25th.
1856.....	do 20 to 22	do 19	
1857.....	do 14 to 19	do 17	
1858.....	do 24	do 24	
1859.....	do 13	do 16	
1860.....	do 18	do 19	
1861.....	do 22 to 28	do 16	
1862.....	do 24 to 29	do 24	
1863.....	do 22	do 30	
1864.....	do 19	do 26	
1865.....	do 16	do 20	
1866.....	do 14	do 28	
1867.....	do 23 to 28	do 24	
1868.....	do 24 to 31	do 29	
1869.....	do 25	do 6	
1870.....	do 11	do 27	
1871.....	do 12	do 23	
1872.....	do 16	do 20	
1873.....	do 14	do 18	
1874.....	do 16	do 20	
1875.....	do 19	do 15	
1876.....	do 10	do 24	
1877.....	do 20	do 15 to 20	
1878.....	do 15	do 2	
1879.....	do 11	do 23	
1880.....	do 26	do 20	

(Signed) WM. WOODS.

(True copy.)

CHARLES CARPMEL,

*Supt. of Meteorological Service.*

No. 11.—STATEMENT showing some of the ports in the Dominion, which are open to Navigation the whole year.

Name of Port.	County.	Province.	Depth of Water at Low Water.	Remarks.
			Feet.	
Annapolis.....	Annapolis .....	Nova Scotia.....	15 to 20	In very severe winters thin ice forms but screw steamers could always enter.
Barrington.....	Shelburne .....	do .....	12 to 20	At anchorage. Wharves dry at low water.
Digby.....	Digby.....	do .....	18	About 10 feet at end of steamboat pier.
Halifax.....	Halifax.....	do .....	20 to 30	At wharves. 70 to 180 feet in harbour.
Liverpool.....	Queen's.....	do .....	7	On bar. At Brooklyn 24 feet.
Lockport.....	Shelburne .....	do .....	8	
Lunenburg.....	Lunenburg.....	do .....	12	
Parrsboro.....	Cumberland.....	do .....	.....	Dry in harbour at low water.
Shelburne.....	Shelburne .....	do .....	40 to 60	
Yarmouth.....	Yarmouth.....	do .....	13	
St. Andrews.....	Charlotte.....	New Brunswick.	14	In inner harbour.
St. John.....	St. John.....	do ..	20	At entrance of harbour. 60 feet in harbour.
St. Stephen.....	Charlotte.....	do ..	6	30 feet at the ledge, 4 miles below the town.
*Tadoussac.....	Saguenay.....	Quebec.....	30 to 50	
Windsor.....	Essex.....	Ontario.....	.....	Ferry boats cross Detroit River all winter.

\*See remarks respecting Tadoussac Harbour in Appendix No. 8 of general report 1867-1882.

Victoria, Nanaimo, Burrard Inlet and all other ports in British Columbia up to Skeena River, are always open. New Westminster is liable to be closed 7 to 15 days. See telegram No. 34,027 from Hon. J. W. Trutch, 3rd May, 1883.

*Tides in British Columbia.*—At Victoria ordinary springs rise from 7 to 10 feet, neaps 5 to 8 feet; at Nanaimo, ordinary springs rise 14 feet, neaps 11 feet; at Westminster, ordinary springs rise 7 feet, neaps 4 feet; at Hastings, Burrard Inlet, ordinary springs rise 16 feet, neaps 12 feet; at Port Moody, ordinary springs rise 10 to 12 feet, neaps 5 to 6 feet. See telegram from the Hon. J. W. Trutch, 25th Oct., 1883, No. 39,810.



APPENDIX No. 18.

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# STATEMENT

SHOWING

TIME OF HIGH WATER AT FULL AND CHANGE,

AND

RISE OF NEAP AND SPRING TIDES

AT VARIOUS PLACES IN

CANADA.

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## APPENDIX No. 18.

TIME of High Water, Full and Change, Rise of Spring and Neap Tides at various localities in Canada.

## NOVA SCOTIA.

County.	Port or Harbour.	High Water, Full and Change.	Rise of Tides.		Remarks.	Authority.
			Neaps.	Springs.		
			ft. in.	ft. in.		
Annapolis	Digby Gut.	11 0	23 0	27 6	S.E. side Minas Channel, Bay Fundy.	Admiralty Charts, Capt. Shortland, 1860. Public Works Dept., G. F. Baillairgé, 1871.
	Margareville.	11 0	.....	.....	do	do
Antigonish	Port Lorne, late Port Williams	11 0	.....	.....	S.E. side and towards lower end, Northumberland Strait.	Admiralty Charts, Capt. Bayfield, 1846. Public Works Dept., G. F. Baillairgé, 1871.
	Antigonish Harbour	9 0	2 0	4 0	W. side of St. George's Bay	do
	Arisaig	10 6	3 3	5 3	Northumberland Strait.	do
	McNair's Cove	.....	.....	.....	.....	Admiralty Charts, Capt. Bayfield, 1850. do
Cape Breton	Strait of Canso, N. entrance.	9 15	2 0	4 0	.....	do
	Tracadie Harbour	9 15	2 6	4 0	Neap range 24 feet	Com. Orlebar, 1857-58. Capt. Bayfield, 1849.
	Louisburg Harbour	8 0	4 0	5 0	.....	do
	Sydney Harbour	9 0	4 0	5 0	.....	do
	Tatamagouche Bay	10 0	5 0	8 0	.....	do
	Advocate Bay	11 42	33 0	39 0	.....	do
	Amherst.	11 55	38 0	45 3	Highest spring tide, 46 feet above ordinary low water springs.	Capt. Shortland, 1860. Public Works Dept., G. F. Baillairgé, 1871.
	Parrsboro'	11 50	.....	.....	N. side of Basin of Minas	do
	Pugwash	10 30	4 0	7 0	.....	Admiralty Charts, Capt. Bayfield, 1840.
	Sable Island, north side.	7 30	.....	4 0	.....	do
	do south side.	6 30	.....	4 0	.....	do
	Wallace Harbour	10 30	5 0	8 0	.....	do
	Digby	11 0	23 0	27 6	At lower or S.E. end Annapolis Basin.	Public Works Dept., G. F. Baillairgé, 1871.
	Meteghan Harbour	10 43	.....	.....	E. side St. Mary's Bay, at mouth of Bay.	do
	Petit Passage	10 41	18 0	22 0	Neap range 134 feet.	Admiralty Charts, Capt. Shortland, 1862.
	Mississibi River, at Weymouth	10 43	17 0	20 9	N.E. side St. Mary's Bay, about midway up Bay.	Public Works Dept., G. F. Baillairgé, 1871.

## TIME of High Water, Full and Change, Rise of Spring and Neap Tides, &amp;c.—Continued.

## NOVA SCOTIA—Continued.

County.	Place or Harbour.	High Water, Full and Change.	Rise of Tides.		Remarks.	Authority.
			Neaps.	Springs.		
		h. m.	ft. in.	ft. in.		
Guysboro'	Canso Harbour .....	7 48	4 6	6 6	.....	Admiralty Charts, Capt. Bayfield, 1850-55.
	Chedabucto Bay .....	8 50	.....	.....	At lower or S.E. end of Strait of Canso.	Public Works Dept., G. F. Baillairge, 1871.
	Guysboro' Harbour .....	8 20	4 6	6 6	At W. or upper end Chedabucto Bay.	do do 1871.
Halifax.	Larry Harbour, Tor Bay. ....	8 0	4 0	6 0	On S. coast, Nova Scotia, Atlantic Ocean	do do 1871.
	Liscomb Harbour .....	8 0	4 6	6 6	N-ap range 2 feet .....	Admiralty Charts, Capt. Bayfield, 1854.
	Ragged Head .....	8 50	5 0	8 0	N.W. side, Chedabucto Bay .....	Public Works Dept., G. F. Baillairge, 1871.
	Whitehaven .....	8 0	5 6	6 6	Neap range $4\frac{1}{2}$ feet .....	Admiralty Charts, Capt. Bayfield, 1855.
	Blind Bay .....	7 46	6 0	7 6	.....	do do 1864.
	Halifax .....	7 49	5 0	6 0	.....	do do 1853.
	Ship Harbour .....	7 54	4 6	6 6	Neap range 2 feet .....	do do 1854.
	Avon River, mouth of .....	12 33	40 0	48 0	.....	do do 1860.
	Basin of Minas, Noel Bay .....	12 41	43 6	50 6	S.W. side, Avon River .....	Public Works Dept., G. F. Baillairge, 1871.
	Hants	.....	12 30	40 0	48 0	S. side, Cobequid Bay .....
Inverness.	.....	12 41	43 6	50 6	N.W. side, Cape Breton .....	Public Works Dept., G. F. Baillairge, 1871.
	Cheticamp .....	8 15	2 0	3 6	do do .....	do do 1871.
	Chimney Corner .....	.....	.....	.....	do do .....	do do 1871.
	Île de Anse .....	.....	.....	.....	do do .....	do do 1871.
	Mabou .....	9 0	2 0	4 0	do do .....	do do 1871.
	Margaree River .....	8 40	2 0	3 6	do do .....	do do 1871.
	Port Hood .....	9 0	2 0	4 6	do do .....	do do 1871.
	Smith's Island .....	.....	.....	.....	do do .....	do do 1871.
	Baxter's Harbour .....	.....	.....	.....	do do .....	do do 1871.
	Kings	.....	.....	.....	S E. side Minas Channel, Bay of Fundy.	do do 1871.
Kings	Bennett's Cove .....	.....	.....	.....	do do .....	do do 1871.
	Black Hole .....	.....	.....	.....	do do .....	do do 1871.
	Canada Creek .....	.....	.....	.....	do do .....	do do 1871.
	Chipman's Brook .....	.....	.....	.....	do do .....	do do 1871.
	French Cross or Morden Cross .....	.....	.....	.....	do do .....	do do 1871.
	Harbourville .....	.....	.....	.....	do do .....	do do 1871.
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....

Hall's Harbour.....	.....	.....	.....	.....	do	do	do	1871.
Little Glam Cove.....	.....	.....	.....	.....	do	do	do	1871.
Oak Point.....	11 40	.....	.....	.....	W. side of S. end, Basin Minas.....	do	do	1871.
Ross Creek.....	.....	.....	.....	.....	S.E. side Minas Channel Bay of Fundy.....	do	do	1871.
Scott's Bay.....	.....	.....	.....	.....	do	do	do	1871.
Well's Cove.....	.....	.....	.....	.....	do	do	do	1871.
Lunenburg.....	7 54	6 0	7 3	.....	do	do	do	1871.
Pictou.....	10 0	4 0	6 0	.....	Admiralty Charts, Capt. Shortland, Capt. Bayfield, 1861-62.	do	do	1842.
Queens.....	.....	.....	.....	.....	do	do	do	1842.
Merigomish Harbour.....	10 6	2 0	5 0	.....	Public Works Dept., G. F. Baillairgé, 1871.	do	do	1871.
Little Hope Island.....	7 30	.....	.....	.....	do	do	do	1871.
Liverpool Harbour.....	7 52	5 3	7 4	.....	Admiralty Charts, Capt. Shortland, 1861-62.	do	do	1871.
Port Medway.....	7 50	8 0	8 0	.....	do	do	do	1871.
Port Mouton.....	7 54	5 3	7 6	.....	do	do	do	1871.
Antich Harbour.....	8 10	4 0	5 0	.....	Public Works Dept., G. F. Baillairgé, 1871.	do	do	1871.
Grand River.....	.....	.....	.....	.....	do	do	do	1871.
St. Peter's Bay.....	7 30	4 0	6 0	.....	do	do	do	1871.
Cape Sable.....	8 27	6 6	8 6	.....	Admiralty Charts, Capt. Shortland, 1855.	do	do	1855.
Seal Island.....	9 49	10 3	12 3	.....	do	do	do	1855.
Shelburne.....	8 04	5 6	7 0	.....	Public Works Dept., G. F. Baillairgé, 1871.	do	do	1871.
Aspee Bay.....	7 30	4 0	6 0	.....	do	do	do	1871.
Cape North.....	8 0	3 0	4 0	.....	do	do	do	1871.
South Ingon sh.....	8 11	2 9	3 11	.....	do	do	do	1871.
Ste. Anne Harbour.....	8 34	4 6	6 0	.....	Admiralty Charts, Capt. Bayfield, 1849.	do	do	1849.
Green Cove or Matland.....	10 9	.....	.....	.....	Public Works Dept., G. F. Baillairgé, 1871.	do	do	1871.
Puabico.....	9 25	10 0	12 0	.....	Admiralty Charts, Capt. Shortland, 1850-53.	do	do	1853.
Yarmouth.....	10 9	13 0	16 0	.....	do	do	do	1853.

## NEW BRUNSWICK.

Beaver Harbour.....	11 19	20 0	21 6	.....	N. side Bay of Fundy.....	Public Works Dept., G. F. Baillairgé, 1871.
Campo Bello Island.....	11 21	20 0	23 6	.....	Neap range 16½ ft. ....	Admiralty Charts, Capt. Owen, 1847.
Grand Manan, Grand Harbour.....	11 07	17 6	21 0	.....	do	do
do Seal Cove.....	10 51	15 0	20 0	.....	do	do

Charlotte.....

TIME of High Water, Full and Change, Rise of Spring and Neap Tides, &c.—Continued.  
NEW BRUNSWICK.—Continued.

County.	Port or Harbour.	High Water, Full and Change.	Rise of Tides.		Remarks.	Authority.
			Neaps.	Springs.		
		h m.	ft. in.	ft. in.		
Charlotte.	Lepreaux .....	11 18	21 0	24 6	.....	Admiralty Charts, Capt. Owen, 1818.
	St. Andrews .....	10 50	21 0	25 0	.....	do Lieut. Kortright, 1814.
	Bathurst .....	3 15	4 0	7 0	.....	do Capt. Bayfield, 1839.
	Carquette Harbour .....	2 40	3 0	6 0	.....	do do do 1839.
	Miscou Harbour .....	3 20	3 0	5 0	.....	do do do 1839.
Gloucester.	Shippagan Harbour .....	3 42	3 0	5 6	.....	do do do 1839.
	Suctouche River .....	7 00	2 0	4 0	.....	do do do 1843.
	Cocagne Harbour .....	7 30	2 0	4 0	.....	do do do 1843.
	Miramichi Bay .....	5 & 5 30	4 0	5 0	.....	do do do 1847.
	Richibucto River .....	Once in 24 hours	2 6	4 0	.....	do do do 1839.
Northumberland.	Miramichi Bay, River Beaubère.	3 30 a.m.	4 0	6 0	.....	do do 1837.
	Miramichi Bay, River Shell-drake.	6 00	3 0	5 0	.....	do do 1837.
Ristigouche.	Richibucto .....	.....	2 6	4 0	W. side Northumberland Strait.	Public Works Dept., G. F. Baillairgé, 1871.
	Campbellton .....	4 00	7 0	10 0	.....	Admiralty Charts, Capt. Bayfield, 1839.
	St. John Harbour .....	11 21	23 0	27 0	Neap range 19 ft.	do do do 1844.
	St. John .....	11 35	25 0	30 0	N.-W. side Bay of Fundy.	Public Works Dept., G. F. Baillairgé, 1871.
	Quaco .....	10 30	5 0	9 0	Highest spring tide 10½ ft.	do do do 1871.
Westmoreland.	Baie Verte .....	.....	34 6	41 0	.....	Admiralty Charts, Capt. Shortland, 1861.
	Bay of Fundy, Cumberland Basin, Grindstone .....	11 47	38 0	45 3	Highest spring tide 46 ft. above ordinary low water spring.*	Public Works Dept., G. F. Baillairgé, 1871.
	do Fort Cumberland .....	11 55	38 0	45 0	.....	Admiralty Charts, Capt. Shortland, 1861.
	do Folly Point .....	11 49	38 0	45 0	.....	do do 1861.
	do Sackville .....	11 55	38 0	45 3	.....	do do 1861.

\*Fort Cumberland.—  
Highest spring tide.....  
do do .....  
do do .....  
Observed by Saxby, 5th Oct., 1839 —  
50.00 feet.  
48.80 " extreme  
Observed by G. F. Baillairgé, 25th Oct., 1870 —  
46.00 feet above ordinary low water spring.  
48.80 " " extreme do

PRINCE EDWARD ISLAND.

King's.....	Cardigan Bay.....	8 40	3 2	5 0	Admiralty Charts, Capt. Bayfield, 1844.
	East Point.....	8 30	2 0	3 6	do do do
	Grand Ronion River.....	8 45	2 9	5 0	do do do
	Murray Harbour.....	9 06	3 3	6 2	do do do
	St. Peter's Bay.....	8 00	2 6	4 0	do do do
Prince.....	Bedeque Harbour.....	10 15	5 0	7 0	do do do
	Casumpeque.....	5 40	2 0	3 0	do do do
	Richmond Bay.....	6 00	2 0	3 0	do do do
Queen's.....	Charlottetown.....	10 45	7 0	9 6	do do do
	Crapaud.....	10 00	6 0	8 0	do do do
	Hillsborough Bay.....	10 45	7 1	9 5	do do do
	Tracadie Harbour.....	7 00	2 0	3 6	do do do

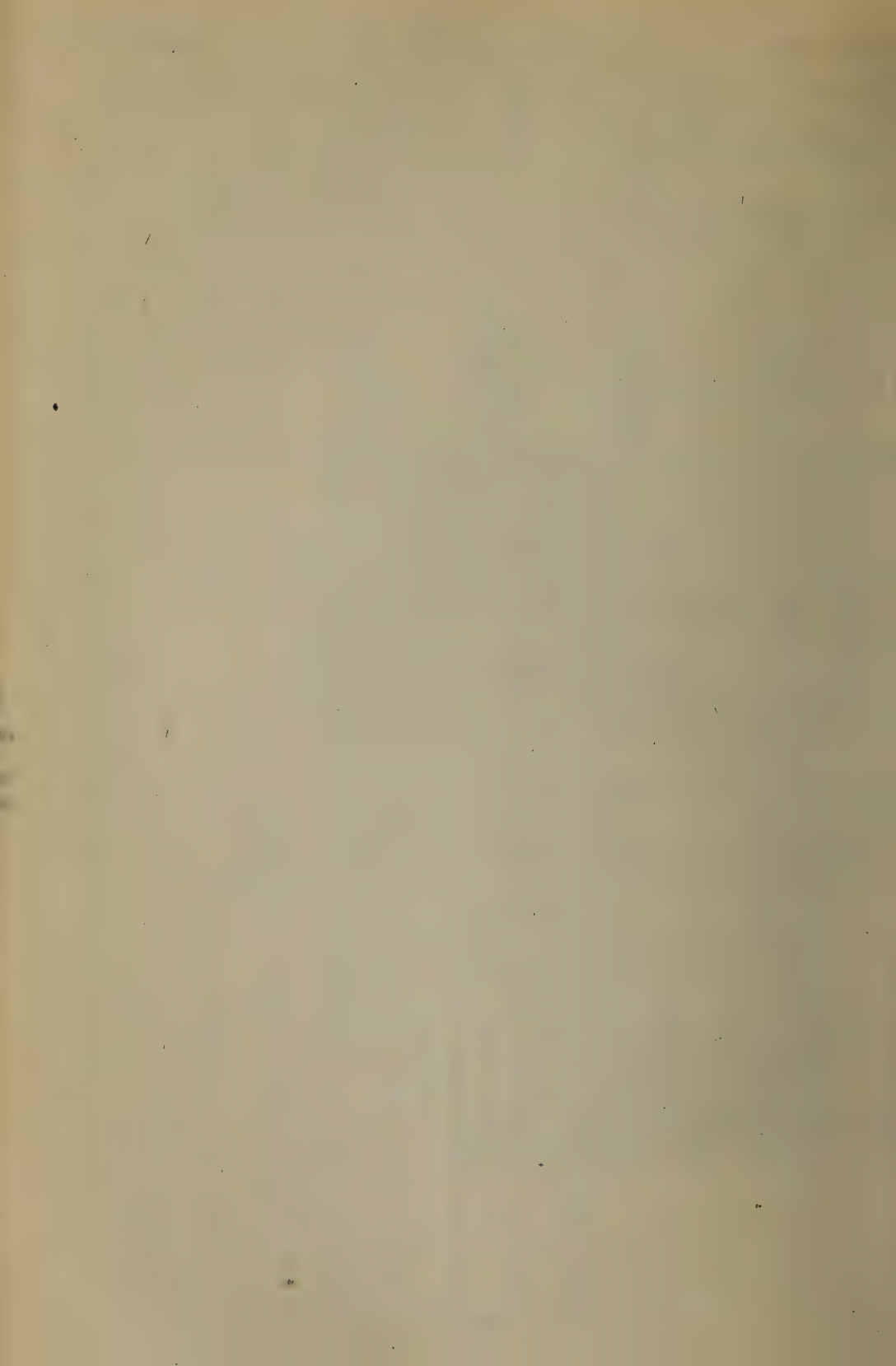
QUEBEC.

Bonaventure.....	Carleton.....	3 00	4 0	6 0	Admiralty Charts, Capt. Bayfield, 1839.
Champlain.....	Macquereau Point.....	2 00	3 0	5 0	do do do
	Champlain.....	9 45	2 0	3 0	do do do
Charlevoix.....	Ile aux Coudres (Prairie Bay)	4 25	{ 10 0 7 9 }	{ 17 0 17 0 }	do do do
					Public Works Dept., C. F. Roy, 1880.
Chicoutimi.....	Malbaie.....	4 02	8 0	16 0	do do do
	Chicoutimi.....	2 45	10 0	12 0	do do do
	Tadoussac.....			17 0	do do do
Gaspé.....	Cap Chate.....	2 00	6 0	12 0	do do do
	Gaspé.....	2 40	3 0	5 0	do do do
	Magdalen Islands.....	8 20	2 0	3 0	do do do
	Malbaie.....	1 50	3 0	5 0	do do do
	Percé Bay.....	1 50	3 5	5 5	do do do
Kamouraska.....	Kamouraska.....	3 00	10 0	17 0	do do do
	Rivière Ouelle (Pointe aux Orignaux).		10 0	17 0	do do do
L'Islet.....	St Roch.....	4 50	{ 10 0 7 8 }	{ 17 0 17 0 }	do do do
Montnagry.....	Crane Island.....	5 24	13 0	17 0	do do do
	Berthier.....			17 0	do do do
Montmorency.....	St. François (Orleans Island)	5 40	13 0	17 0	do do do

TIME of High Water, Full and Change, Rise of Spring and Neap Tides, &c.—Continued.  
 QUEBEC—Continued.

County.	Port or Harbour.	High Water, Full and Change.	Rise of Tides.		Remarks.	Authority.
			Neaps.	Springs		
		h. m.	ft. in.	ft. in.		
Portneuf.	Cap à la Roche, Grondines...	9 30	{ 4 0 5 3	{ 6 0 8 7	Current always down; flood runs up on flat for 3 h. as far as Batiscan.	{ Admiralty Charts, Capt. Bayfield, 1831-37. Public Works Dept., R. Steckel, 1882.
	Fréchette's Island.....	8 0	{ 9 0 9 8	{ 14 0 14 6	The stream of ebb makes immediately after h. w. by shore, running down 9 h. The flood makes up in the stream for about 2 h. at springs, but is scarcely felt at neaps.	
	Portneuf (Platon).....	8 30	{ 9 0 9 6	{ 14 0 14 10		
Quebec.	Cap Rouge. ....	7 15	11 0	16 0	The stream of flood makes 50 m. after l. w. by the shore, and runs up 4 h. 30 m. The stream of ebb makes up about 10 m. after h. w. by shore, runs down 7 h. 30 m.	Admiralty Charts, Capt. Bayfield, 1831-37.
Rimouski.	Quebec Harbour .....	6 38	{ 13 0 11 0	{ 18 0 18 0	Ebbs 7 h. 40 m.; flows 4 h. 45 m. by the shore. Stream of both tides runs an hour after h. and l. water by the shore.	{ Admiralty Charts, Com. Orlebar, 1859. Public Works Dept., R. Steckel, 1882.
	Bic Island Harbour.....	2 15	8 6	14 0	Ebbs 6 h. 34 m.; flows 5 h. 30 m.	
	Little Metis at Les Boules....	2 15	8 0	14 4		
	Matane. ....	2 15	7 0	11 0		
Saguenay.	Métis .....	2 10	8 0	13 0		Admiralty Charts, Capt. Bayfield, 1827-34. Public Works Dept., C. Taché, 1882. Admiralty Charts, Capt. Bayfield, 1827-34. Public Works Dept., C. F. Roy, 1880, 1882, and C. Taché, 1882. Admiralty Charts, Capt. Bayfield, 1827-34. Public Works Dept., G. F. Baillairgé, 1880. Admiralty Charts, Capt. Bayfield, 1830. do do do do do do do do do do do do
	Rimouski. ....	1 10	3 0	5 0		
	Anticosti Island Bear Bay. ...	1 0	3 0	5 0		
	do East Cape....	2 0	4 0	6 0		
	do West Point.	10 30	3 0	5 0		
	Antrobis Island ..	1 40	5 0	9 0		
Bay of Seven Islands.....	2 0	7 0	12 0			
	Bersimis River.....					

Bonne Espérance Harbour.....	9 15	2 6	5 0	.....	do	1834.
Bradore Bay.....	8 45	2 0	4 0	The stream of flood drives into this bay, and the ebb out, but it is much influenced by the winds.	do	1834.
Cawee Islands.....	1 50	5 0	9 0	.....	do	1834.
Clearwater Point. ....	11 30	3 0	5 0	.....	do	1834.
Coacocho Bay. ....	10 30	3 0	5 0	.....	do	1834.
Egg Island.....	2 0	6 0	11 0	.....	do	1834.
Kegashka Bay.....	10 45	3 0	5 0	.....	do	1834.
Little Natashquan.....	11 0	3 0	5 0	.....	do	1834.
Manicouagan River.....	2 15	7 0	12 0	.....	do	1834.
Mingan Harbour.....	1 10	4 0	6 0	.....	do	1834.
Portneuf.....	2 10	8 6	14 0	Ebbs 6 h. 18 m.; flows 6 h. 7 m....	do	1827-34.
River Godbout.....	1 52	6 0	11 0	Ebbs 6 h. 19 m.; flows 6 h. 5 m....	do	1827-34.
St. Nicolas Harbour.....	1 55	7 0	12 0	Ebbs 6 h. 26 m.; flows 5 h. 28 m....	do	1827-34.
St. Paul Island.....	8 0	3 0	5 0	.....	do	1836.
Pointe du Lac.....	10 30	1 0	1 0	.....	Tide ends.	1831-37.
Three Rivers.....	.....	.....	.....	Easterly gales cause the tide to rise one or two feet higher.	Admiralty Charts, Capt. Bayfield,	1831-37.
Brandy Pots.....	3 6	10 0	17 0	Ebbs 6 h. 34 m.; flows 5 h. 50 m by the shore. Ebb continues to run 1 h. after l. w.; flood continues to run $\frac{3}{4}$ h. after h.w.	do	1827-34.
Green Island. ....	2 45	9 6	16 0	Ebbs 6 h. 24 m.; flows 6 h. by the shore.	do	1827-34.
Rivière du Loup.....	3 7	7 0	16 6	.....	Public Works Dept., J. Stewart,	1847.



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APPENDIX No. 19.

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COMPARATIVE STATEMENT

OF THE

NUMBER OF VESSELS,

THEIR

AGGREGATE TONNAGE,

AND THE

NUMBER OF MEN EMPLOYED

WHICH HAVE

ARRIVED FROM SEA,

AT THE PORTS OF HALIFAX, N.S., ST. JOHN, N.B., CHARLOTTETOWN,  
P.E.I., QUEBEC AND MONTREAL, PROVINCE OF QUEBEC,  
AND VICTORIA, B.C., FROM 1868 TO 1882.

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Ref. No. 36,018.

## APPENDIX No. 19.

STATEMENT of the Number of Vessels and their Aggregate Tonnage, and Number of Men Employed, which have arrived *from Sea*, to 30th June each year since Confederation, at the Port of Halifax, N.S.; St. John, N.B.; Charlottetown, P.E.I.; Quebec, Montreal, P.Q.; Victoria, B.C.

Port.	Year.	No. of Vessels.	No. of Tons.	No. of Men.	Remarks.
Halifax, N.S.....	1868	1,059	274,089	16,562	Nova Scotia entered Confederation on 1st July, 1867.
	1869	1,292	288,682	16,022	
	1870	1,251	311,357	16,319	
	1871	1,266	302,338	15,581	
	1872	1,387	363,847	20,211	
	1873	1,384	372,985	19,803	
	1874	1,074	316,955	15,800	
	1875	1,215	354,274	18,188	
	1876	1,067	374,705	16,621	
	1877	1,076	494,638	20,358	
	1878	917	473,423	18,862	
	1879	959	391,448	18,725	
	1880	1,070	529,663	21,143	
	1881	1,157	601,398	23,630	
	1882	1,168	575,529	23,806	
		17,372	6,025,341	281,631	
St. John, N.B.....	1868	993	374,429	10,046	New Brunswick entered Confederation on 1st July, 1867.
	1869	1,423	502,083	13,320	
	1870	1,613	471,297	13,382	
	1871	1,575	442,837	12,371	
	1872	1,562	420,860	12,056	
	1873	1,470	406,442	11,537	
	1874	1,320	480,473	12,563	
	1875	1,131	377,614	10,593	
	1876	994	376,939	8,090	
	1877	1,115	421,060	10,051	
	1878	1,206	396,330	9,867	
	1879	1,055	376,919	9,711	
	1880	1,424	462,880	12,337	
	1881	1,444	444,546	12,548	
	1882	1,536	493,783	14,059	
		19,961	6,458,762	173,981	
Charlottetown, P.E.I.	1874	173	51,478	2,116	Prince Edward Island entered Confederation on the 1st July, 1873.
	1875	196	57,609	2,176	
	1876	184	68,521	2,305	
	1877	350	79,893	3,391	
	1878	288	65,716	2,932	
	1879	429	79,330	3,832	
	1880	255	64,281	2,598	
	1881	288	64,322	2,635	
	1882	196	50,038	2,018	
		2,358	581,198	24,003	

STATEMENT of the Number of Vessels and their Aggregate Tonnage, and Number of Men Employed, which have arrived from Sea, to 30th June, &c.

Port.	Year.	No. of Vessels.	No. of Tons.	No. of Men.	Remarks.
Quebec, Que.....	1868	910	628,866	18,520	Quebec entered Confederation 1st July, 1867.
	1869	952	640,087	19,205	
	1870	1,091	756,078	21,931	
	1871	844	623,474	18,741	
	1872	1,002	783,316	21,730	
	1873	917	734,937	20,827	
	1874	971	789,433	22,658	
	1875	854	639,235	19,818	
	1876	949	744,252	20,107	
	1877	983	855,101	21,489	
	1878	910	802,930	19,499	
	1879	642	602,490	15,610	
	1880	657	665,608	17,221	
	1881	783	802,186	19,888	
	1882	642	676,327	17,675	
		13,107	10,754,350	294,869	
Montreal, Que.....	1868	253	160,553	7,339	
	1869	261	168,824	7,921	
	1870	340	228,121	9,366	
	1871	346	247,313	10,300	
	1872	435	311,567	11,724	
	1873	422	307,453	11,867	
	1874	384	306,782	11,623	
	1875	354	297,363	10,972	
	1876	337	285,609	9,881	
	1877	303	279,197	1,208	
	1878	325	309,261	9,679	
	1879	300	349,712	10,763	
	1880	374	427,057	13,269	
	1881	400	484,028	13,754	
	1882	347	373,412	11,934	
		5,181	4,536,252	151,600	
Victoria, B.C. ....	1872	292	131,696	4,487	British Columbia entered Confederation on the 20th July, 1871.
	1873	408	160,414	5,829	
	1874	401	156,197	5,744	
	1875	453	193,481	7,090	
	1876	524	302,199	11,706	
	1877	523	312,155	11,569	
	1878	488	358,924	11,443	
	1879	514	377,705	10,891	
	1880	471	356,649	10,132	
	1881	467	338,996	9,297	
	1882	488	398,034	11,792	
		5,029	3,086,450	99,980	

APPENDIX No. 20.

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STATEMENT

SHOWING THE

NUMBER AND TONNAGE OF VESSELS CONSTRUCTED

AT THE PRINCIPAL

SHIP BUILDING PORTS IN CANADA,

From 1868 to 1882, (inclusive).

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## APPENDIX No. 20

Ref. No. 38,019.

STATEMENT showing the Number and Tonnage of Vessels constructed at the principal Ship Building Ports of Canada, from 1868 to 1882.

(Compiled from Trade and Navigation Returns)

Year.	NOVA SCOTIA.						NEW BRUNSWICK.																				
	Halifax.			Pictou.			Windsor.			Yarmouth.			St. John.			Chatham.			Dorchester.								
	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.						
	Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.		Steam.	Tonnage.				
1868	...	...	...	6	1,734	...	3	2,510	...	...	4	1,678	...	...	42	12,407	...	15	4,690	...	2	1,122					
1869	...	4	723	3	861	...	15	5,047	...	...	2	712	3	232	65	22,880	...	6	4,536	...	2	1,371					
1870	1	4	805	6	2,224	...	17	6,566	1	35	20	9,248	2	879	64	26,620	...	12	4,341	...	3	1,701					
1871	1	11	1,344	...	4,207	...	16	6,641	...	...	21	11,672	4	157	80	27,311	...	72	4,338	...	3	1,881					
1872	...	55	13,157	3	1,706	...	15	5,899	...	...	17	11,998	5	421	69	29,493	...	22	1,176	...	7	4,036					
1873	...	41	15,196	11	4,832	...	15	7,408	...	...	18	13,963	6	687	58	32,494	...	22	1,865	...	5	2,655					
1874	1	9	45	18,366	...	23	11,447	...	...	27	21,466	2	37	64	35,862	...	...	3	301	...	6	3,862					
1875	...	28	9,163	1	10	5,262	...	24	15,777	...	21	19,804	4	188	61	38,820	...	...	2	35	...	7	5,180				
1876	1	21	35	6,607	1	25	14	6,793	...	...	27	18,605	1	100	38	24,296	...	13	3,175	...	6	4,568					
1877	2	8	28	3,449	3	18	10	4,612	...	...	35	10,750	1	201	41	22,731	...	11	3,158	...	4	3,759					
1878	...	16	3,144	...	3,564	...	12	9,421	1	6	15	8,445	1	68	26	20,463	...	11	3,265	...	4	1,906					
1879	...	22	2,164	...	9,000	...	13	12,877	...	...	24	19,001	3	24	34	20,706	...	23	14	3,280	...	3	2,692				
1880	2	22	16	1,421	...	2	5	9,916	...	...	11	10,856	2	256	30	12,470	...	1	5	88	...	1	1,156				
1881	3	63	18	1,421	...	26	12	9,916	...	...	12	10,856	2	256	30	12,470	...	1	5	88	...	1	1,156				
1882	...	15	3,862	...	2,938	...	16	9,552	1	12	10	4,562	1	32	37	11,835	...	1	29	...	3	1,791					
	16	192	388	95,337	6	56	111	48,209	3	240	233	138,715	4	59	267	169,854	37	3,789	754	35,249	11	273	127	31,786	...	57	38,920

STATEMENT showing the Number and Tonnage of Vessels constructed at the principal Ship Building Ports of Canada, from 1868 to 1882—*Concluded.*

Year.	PRINCE EDWARD ISLAND.				QUEBEC.				MONTREAL.				ST. CATHARINES.				TORONTO.				KINGSTON.					
	Charlottetown.				Quebec.																					
	Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.			
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.		
1868	.....	.....	.....	.....	2	344	56	23,649	2	327	8	701	.....	.....	.....	.....	1	53	1	50	.....	3	535	.....	14	1,604
1869	.....	.....	.....	.....	3	262	61	28,767	5	443	18	2,028	.....	.....	.....	.....	2	33	1	32	.....	3	210	.....	13	536
1870	.....	.....	.....	.....	2	164	39	17,932	3	77	11	1,210	.....	.....	.....	.....	2	169	2	1,016	.....	3	270	.....	11	1,501
1871	.....	.....	.....	.....	6	352	51	17,965	7	374	13	1,643	.....	.....	.....	.....	4	418	7	1,052	.....	3	625	.....	1	37
1872	.....	.....	.....	.....	5	873	50	11,100	1	43	9	1,539	.....	.....	.....	.....	1	426	.....	.....	.....	3	624	.....	5	537
1873	.....	.....	.....	.....	4	88	54	18,584	3	332	5	1,197	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	624	.....	5	537
1874	.....	.....	.....	.....	5	210	47	20,855	4	333	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	746	.....	11	1,802
1875	.....	.....	65	14,959	8	1,426	57	19,280	4	844	6	1,453	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	621	.....	4	751
1876	.....	.....	1	149	9	25,892	8	734	75	21,104	8	1,392	44	4,363	4	356	5	1,069	.....	.....	.....	4	375	.....	8	1,305
1877	.....	.....	2	212	89	20,992	7	395	41	19,326	10	660	39	3,268	4	327	1	87	.....	.....	.....	2	474	.....	201	3
1878	.....	.....	.....	.....	4	124	28	12,849	5	493	5	569	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	26	.....	3	769
1879	.....	.....	57	16,486	4	568	21	7,560	4	348	3	332	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	39	.....	4	305
1880	.....	.....	2	49	26	7,395	8	506	16	4,508	3	34	10	1,193	1	18	.....	.....	.....	.....	.....	2	35	.....	3	152
1881	.....	.....	18	2,863	6	271	22	5,489	3	124	12	2,023	1	12	1	267	.....	.....	.....	.....	.....	2	33	.....	1	160
1882	.....	.....	14	3,776	4	417	18	3,206	3	326	18	2,992	2	245	.....	.....	.....	.....	.....	.....	.....	3	255	.....	5	1,105
	5	410	444	113,317	78	6,734	626	232,183	65	6,150	201	24,511	34	6,059	38	11,721	28	1,669	33	3,461	.....	45	4,061	.....	78	12,645

N.B.—For number and tonnage of sea-going vessels built in Quebec from 1767 to 1867, see Appendix No. 52 of Report of Commissioners of Public Works, published in 1867.—G.F.B.

APPENDIX No. 21.

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NUMBER OF SEA-GOING AND COASTING VESSELS WRECKED

ON THE

SEA COAST

IN THE

GULF, RIVER and LAKES of the ST. LAWRENCE

IN THE

DOMINION OF CANADA,

From 1868 to 1881 (inclusive.)

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COMPILED FROM REPORTS OF DEPARTMENT OF MARINE AND  
FISHERIES.

## APPENDIX No. 21.

Ref. No. 36,020.

## PART 1st.—SEA-GOING AND COASTING VESSELS.

(a) STATEMENT of Wrecks and Casualties which have occurred in Canadian Waters to Foreign and Canadian Sea-going Vessels, from 1868 to 1881.

(Compiled from the Yearly Reports of the Minister of Marine and Fisheries)

Year.	Place where Wreck or Casualty occurred, and No. of Vessels wrecked or damaged at each place.										Description of Vessels wrecked or damaged, and No. of each description.						Nature of Casualty and No. of Vessels.				
	Newfoundland	Anticosti Is-land.	Magdalen Is-lands.	Prince Edward Island Coast.	New Brunswick Coast.	Nova Scotia Coast.	Gulf St. Lawrence.	River		Steamers.	Ships.	Barkes.	Brigs.	Brigantine.	Schooners.	Stranded.	Sunk or Foundered.	Burnt.	Collision.	Abandoned.	Other Causes.
								Quebec to Gulf.	Quebec to Montreal.												
June 1, 1868, to Dec. 31, 1869.....	4	4	.....	.....	9	(b) 25	7	36	1	3	9	33	13	7	21	.....	.....	.....	.....	.....	.....
Jan. 1 to Dec. 31, 1870.....	4	5	2	1	9	51	4	30	8	8	15	23	8	13	47	83	6	.....	15	1	9
1871.....	6	1	1	1	11	55	11	37	2	5	20	25	7	22	46	95	5	6	13	1	5
1872.....	2	8	4	1	19	40	16	31	1	6	13	43	4	10	46	90	11	1	8	2	10
1873.....	5	3	37	8	28	116	11	26	3	18	15	39	12	21	132	192	10	3	11	1	20
1874.....	5	7	6	3	23	71	6	62	2	30	21	40	4	18	72	114	5	4	28	1	33
1875.....	8	6	8	7	33	87	14	30	3	19	15	35	4	27	96	146	5	5	26	1	13
1876.....	11	4	9	21	33	109	16	38	10	24	14	49	6	33	125	152	9	5	47	3	37
1877.....	8	8	7	9	29	104	4	68	12	28	13	49	2	25	122	145	8	8	57	.....	21
1878.....	8	7	4	7	33	76	14	31	10	20	8	43	3	18	98	123	5	5	30	.....	17
1879.....	11	2	5	17	25	118	10	32	13	23	13	28	3	23	143	169	4	5	34	1	20
1880.....	7	11	3	11	16	88	24	29	17	27	13	49	8	16	93	113	7	5	39	5	37
1881.....	4	1	5	8	22	58	12	13	5	23	3	30	.....	11	61	76	4	6	54	.....	18
(c).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand Totals.	83	67	91	94	290	998	149	453	87	234	172	486	74	244	1102	1508	79	51	332	16	240

NOTES (a)—For statement of Wrecks prior to 1867, see Appendix No. 53 to Public Works Report for 1867, pp. 426 to 428, prepared by G. F. Baillargé, D.M.P.W.

(b)—The vessels shown as having been wrecked on the Nova Scotia coast are principally fishing and coasting schooners.

(c)—Statement of Wrecks, etc., for 1882, has not yet been published up to this date.

## PART 1st.—SEA-GOING AND COASTING VESSELS.—Continued.

STATEMENT of Wrecks and Casualties which have occurred in Canadian Waters to Foreign and Canadian Sea-going Vessels from 1868 to 1881.

Year.	Approximate Loss.				Total No. of Wrecks, and Casualties.	Remarks.
	When Total.		When Partial.			
	No. of Vessels.	Amount.	No. of Vessels.	Amount.		
June 1, 1868, to Dec 31, 1869 ..					86	Nature of casualties not ascertained ; amount of losses not recorded.
Jan. 1 to Dec. 31,						
1870 .....	53	286,946	61	49,720	114	
1871 .....	58	575,544	67	84,614	125	On 1st April, s.s. "Atlantic" was stranded at Marr's Head, N.S. ; 515 lives lost ; loss \$550,000.
1872 .....	58	847,000	64	314,595	122	On 5th July, s.s. "City of Washington" was stranded at Gull Rock Bar, N.S. ; no lives lost ; loss \$450,000.
1873 .....	94	2,002,210	143	278,692	237	On 6th Sept. s.s. "Medway" was stranded on Newfoundland coast ; 7 lives lost ; loss \$200,000.
1874 .....	65	669,375	120	270,648	185	On 24th Aug. s.s. "Saitwell" foundered off Scatterie, N.S. ; 6 lives lost ; loss \$150,000.
1875 .....	75	1,040,794	121	307,154	196	On Nov. s.s. "Pictou" ; never heard of ; all on board lost ; loss \$45,000.
1876 .....	87	497,490	164	197,562	251	
1877 .....	61	527,950	178	232,073	239	
1878 .....	72	850,250	118	97,918	190	A portion of the partial loss could not be ascertained.
1879 .....	73	675,600	160	169,803	233	On 22nd July, s.s. "Lake Megantic" stranded on Anticosti Island ; no lives lost ; \$200,000.
1880 .....	71	1,192,100	135	151,888	206	
1881 .....	46	608,810	82	361,155	128	On 8th Oct. s.s. "Corean" stranded on Point St. Michel, River St. Lawrence ; no lives lost ; partial loss, \$200,000.
(c) .....						
Grand Totals....	813	9,954,069	1413	2,518,222	2312	

DEPARTMENT OF PUBLIC WORKS, 20th April, 1883.

PART 2ND.—VESSELS NAVI  
STATEMENT of Wrecks and Casualties to Vessels navigating

Year.	Place where Wreck or Casualty occurred, and No. of Vessels wrecked or damaged at each place.						Description of Vessels wrecked or damaged, and No. of each description.				Nature of Casualty, and No. of Vessels.				
	Lakes.				Welland Canal.	Lake Ontario to Montreal.	Steamers.	Propellers.	Schooners, &c.	Barges.	Stranded.	Sunk or Foundered.	Burnt.	Collision.	Other Causes.
	Ontario.	Erie.	Huron.	Superior.											
July 1, 1868, to Dec. 31, 1869...	2	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jan. 1 to Dec. 31, 1870.....	26	21	11	.....	.....	5	5	7	48	3	.....	.....	.....	.....	.....
1871.....	16	6	16	.....	.....	3	6	5	30	.....	.....	.....	.....	.....	.....
1872.....	24	12	8	2	3	6	10	7	32	6	39	6	2	4	4
1873.....	9	2	3	2	.....	2	8	.....	8	2	9	2	4	.....	3
1874.....	10	9	4	.....	1	3	7	.....	19	1	15	5	4	.....	3
1875.....	9	5	5	1	.....	1	12	.....	9	.....	12	1	4	4	.....
1876.....	2	4	2	.....	.....	1	3	1	5	.....	6	1	1	1	.....
1877.....	4	12	3	1	.....	2	4	1	14	3	17	2	1	1	1
1878.....	8	7	10	.....	.....	1	16	.....	10	.....	11	5	7	1	2
1879.....	6	4	8	.....	1	4	10	.....	10	3	11	3	3	5	1
1880.....	22	9	9	1	.....	14	18	.....	27	10	28	9	6	4	8
1881.....	12	2	4	1	2	11	14	.....	14	4	10	8	5	4	5
<b>Grand Totals..</b>	<b>150</b>	<b>99</b>	<b>83</b>	<b>8</b>	<b>7</b>	<b>53</b>	<b>113</b>	<b>21</b>	<b>226</b>	<b>32</b>	<b>158</b>	<b>42</b>	<b>37</b>	<b>24</b>	<b>27</b>

DEPARTMENT OF PUBLIC WORKS, 20th April, 1883.

## GATING ON INLAND WATERS.

on Inland Waters of Canada, from 1863 to 1881.

Approximate Loss.				Total No. of Wrecks or Casualties.	Remarks.
When Total.		When Partial.			
No. of Vessels.	Amount.	No of Vessels.	Amount.		
	\$		\$		
.....	.....	.....	.....	63	
.....	.....	.....	.....	41	
11	150,700	44	70,433	55	{ On 28th Sept. steamer "Rapid" capsized near Pt. Pelée, Lake Erie; 7 lives lost; loss on vessel \$8,000.
6	108,000	12	23,450	18	{ On 24th Nov. propellor "Mary Ward" foundered off Nottawasaga Lighthouse, Lake Huron; 8 lives lost; \$43,000.
6	109,300	21	52,175	27	{ On 5th Nov. steamer "Bavarian" was burnt off Whitby Lighthouse, Lake Ontario; 20 lives lost; \$50,000.
10	96,000	11	27,550	21	
4	40,000	5	11,000	9	{ On 17th May schooner "T. C. Street" capsized on Lake Erie; 6 lives lost; \$4,000.
9	92,000	13	12,400	22	{ On 26th Oct. schooner "Maggie Hunter" on Lake Ontario; 7 lives lost; \$10,000.
13	97,600	13	25,425	26	{ On 8th Oct. barge "American" drifted ashore at Point Pelée, Lake Erie; 6 lives lost; \$7,000.
5	20,900	18	27,445	23	{ On 16th June schooner "James Scott" capsized above Port Burwell Lighthouse, Lake Erie; 5 lives lost; \$10,000.
18	133,600	37	29,500	55	{ On 16th April schooner "Northman" foundered off Port Credit, Lake Ontario; 8 lives lost; \$18,000.
11	110,800	21	38,775	32	{ On 7th Nov. steamer "Zealand" foundered near Long Point, Lake Ontario; 17 lives lost; \$27,000.
					{ On 24th Nov. steamer "Simcoe" foundered off Manitoulin Islands, Lake Huron; 12 lives lost; \$24,000.
					{ On 24th May steamer "Victoria" upset on Thames River, 1½ miles from London; 182 lives lost.
					{ On 19th July steamer "City of Winnipeg" burnt at Duluth; 4 lives lost; \$60,000.
					{ On 14th Nov. schooner "E. P. Dorr" foundered off Long Point; 7 lives lost; \$9,000.
93	958,900	195	318,153	392	

A. GOBEIL.



APPENDIX No 22

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REPORT

ON

GOVERNMENT TELEGRAPH LINES,

FOR FISCAL YEAR ENDED 30<sup>TH</sup> JUNE, 1883.

BY

F. N. GISBORNE, SUPERINTENDENT.

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## APPENDIX No. 22

## REPORT ON GOVERNMENT TELEGRAPH LINES.

Ref. No. 40,357.

OTTAWA, 7th September, 1883.

SIR,—I have the honor to submit the following report upon the Telegraph and Signal Service, for the twelve months ended 30th June, 1883, together with statements showing the receipts and expenditures of the several telegraph lines operated by this Department during the above mentioned period, as compared with those for twelve months immediately preceding. The report is, for convenience, divided into several sections, in order that the telegraph lines operated in different localities may be more particularly dealt with, each under its appropriate heading.

## BRITISH COLUMBIA.

During the year, the line between Yale and Lytton, 57 miles, was thoroughly repaired, all unsound poles being replaced by new ones, defective joints cut out, and the wire removed to the waggon road from the bluffs, whereon it had been placed during the progress of railway construction.

The line between Soda Creek and Alexandria was also repaired in like manner.

The line between Spence's Bridge and Lytton will require renewing as soon as railway construction on that section will allow of permanent repairs being effected; and some portions of the lines between Spence's Bridge and Kamloops, and between Victoria and Nanaimo, will probably have to be renewed during next year, but at present, all is in efficient working order.

The business of the telegraph lines in British Columbia has been steadily increasing since control of the system was assumed by the Government; the number of stations has been increased from eighteen in 1880, to twenty-eight at the present time. There have also been material reductions in tariff rates, and while special attention has been given to the constant improving of the lines and of the system generally, the cost of maintenance has not been materially added to.

The Revenue and Expenditure for 1882-83, compared with that for the four years previous, is as follows:—

Year.	Appropriation.	Expenditure.	Construction.	Ordinary Maintenance.	Revenue.	Excess of Expenditure over Revenue.	Remarks.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	cts.	\$ cts.	
1878-79	46,000 00	46,000 00	6,000 00	40,000 00	5,320 04	34,680 00	
1879-80	36,000 00	35,578 30	(see note.)	35,578 30	8,078 14	27,500 16	
1880-81	29,300 00	38,357 00	10,000 00	28,357 00	10,544 00	17,813 00	Over expenditure covered by next year's vote. The accounts were not classified; but of the \$38,357.00 expended, \$10,000 is estimated to have been applied to construction during 1879-80 and 1880-81.
1881-82	39,000 00	30,147 20	3,940 97	26,206 23	18,414 14	7,792 09	
1882-83	33,000 00	30,505 69	1,500 00	29,005 69 (see note.)	25,093 40	3,912 29	Of the \$29,005.69 set down for maintenance for 1882-83, \$1,204.91 belongs to 1881-82. Hence, the figures for maintenance should be for 1881-82, \$27,411.14, and for 1882-83, \$27,800.78.

The number of offices established, names of employés, dates of appointment, and the salaries to be paid after 30th June, 1883, are shown in the tabular statement at end of this report.

## GULF OF ST. LAWRENCE.

On the 27th May, 1883, the Magdalen Islands' cable was severed by a schooner's anchor, 8½ miles north-west of Cape Lawrence, Cape Breton, and communication with the mainland was thereby interrupted. As soon as possible after the return of the steamer "Newfield" from England, arrangements were made for the repair of that cable, and on the 18th of July the work was accomplished, and telegraphic communication between the Islands and the Mainland re-established. Four days later the Bird Rock cable, which had been out of order several months, was successfully repaired and relaid over a distance of five miles to a more sheltered landing place, and communication was re-established with the other islands of the Magdalen group.

The other cables in the Gulf and the land lines along the coasts and upon the islands remained uninterrupted, and the working of the entire system has been satisfactory to the public. The revenue and expenditure for 1882-83 compared with that for 1881-82 is as follows :—

	1881-82.	1882-83.
Anticosti Lines { Revenue.....	\$ 454 00	\$ 618 20
{ Expenditure .....	1,575 00	1,612 03
Magdalen Lines { Revenue.....	835 00	1,239 67
{ Expenditure .....	4,037 00	3,564 31

These expenditures are exclusive of a proportion of the contingent expenses of the service generally, and do not include amounts paid by the Department for stationery, line material appropriated, &c., out of the amount for the service. (*Vide* Recapitulation at end of report.)

For the number of offices established or to be established on the lines in the Gulf, *see* tabular statement at end of this report. The names of employees, dates of appointment, and the salaries paid to 30th, June 1883, appear opposite the names of the established stations.

## BAY OF FUNDY.

On the 21st November, 1882 the cable between Campo Bello and Grand Manan became interrupted by a wood boat grounding upon it, and as the steamer "Newfield" was at that time about leaving for England, arrangements could not be made for its repair until the 6th September, 1883, when communication between the Islands was restored. With the exception of this interruption of the cable, the Bay of Fundy system worked satisfactorily during the year.

The revenue and expenditure for 1882-83, compared with that for 1881-82, is as follows :—

	1881-82	1882-83
Revenue .....	\$ 565 00	\$ 529 46
Expenditure.....	1,308 00	1,072 71

For the number of offices established, etc. *Vide* tabular statement at the end of this Report.

## NORTH SHORE OF RIVER, ST. LAWRENCE.

During the autumn of 1882 the telegraph line along the north shore of the River St. Lawrence was extended from Mille Vaches to Bersimis, a distance of 58½ miles, under a contract with the Great North Western Telegraph Company for the sum of \$10,818.50, and the whole of the North Shore system, including Baie St. Paul to Chicoutimi Line, 92 miles, and Murray Bay to Bersimis Line, 147 miles, was satisfactorily operated under a contract with the same Company, at a cost of \$1,000; plus revenue retained by the Company.

## ATLANTIC COAST.

The line between Halifax and Canso in Nova Scotia operated by the Western Union Telegraph Company, has been maintained efficiently without cost to the Government.

The line between North Sydney and Meat Cove, which forms part of the Magdalen Islands system has also been efficiently maintained by the Western Union Telegraph Company, but at the expense of the Government. The expenditure upon that section during the year was \$1,941.56, and the revenue derived from it accruing to Government was \$783.36; both expenditure and revenue being included in the figures quoted for the Magdalen's system.

The line between Lingan and Low Point, five miles in length, was also maintained under a similar arrangement with the Western Union Company. The expenditure was about \$100. There was no revenue.

## NEWFOUNDLAND.

During November, 1882, the land line between Port au Basque and Cape Ray, a distance of fourteen miles, was constructed under an agreement with the Anglo-American Cable Company. The Company defrayed the cost of construction, and the Government pay interest thereon at the rate of 5 per cent. per annum, plus cost of maintenance, the total cost approximating \$250 a year.

This line was constructed for the purpose of connecting the lighthouse at Cape Ray with the Signal Service.

## NORTH-WEST TERRITORIES.

The lines in Manitoba and the North West Territories which had been formerly operated by the Department of Railways and Canals, were transferred to the Department of Public Works during the summer of 1882. At the time of transfer the lines which had been constructed were as follows:—

	Miles.
From Prince Arthur's Landing to Winnipeg, <i>via</i> Selkirk.....	433
From Selkirk to Edmonton, <i>via</i> Humbolt.....	812

The entire length being..... 1,245

But the route of the Canadian Pacific Railway having been altered, the cost of maintaining an originally cheaply constructed pioneer line (already much out of repair), through a swampy and wooded country being very costly, with no possibility of an appreciable revenue, it was deemed advisable to abandon *in toto* that section which extends from Selkirk to Humbolt, a distance of 426 miles; and, in order to connect the Humbolt to Edmonton, 396 miles section, with the telegraph system of the North-West Provinces, a line between Qu'Appelle Station (on the line of the Canadian Pacific Railway) and Humbolt, a distance of 141 miles, was begun during the autumn of 1882, and completed during the past summer, communication being now established between Edmonton and Winnipeg *via* Qu'Appelle Station on the Canadian Pacific Railway telegraph line. The line now controlled and operated by the Department of Public Works in the North-West Provinces is, therefore, at the present time as follows:—

	Miles.
Prince Arthur's Landing to Winnipeg <i>via</i> Selkirk.....	433
Qu'Appelle Station <i>via</i> Humbolt to Edmonton. ....	537

Total..... 970

And to this is being added a branch line extending from Saskatchewan to Prince Albert, a distance approximating 100 miles.

Owing to the section between Prince Arthur's Landing and Winnipeg having been operated during the year under an agreement whereby the railway contractors

retained the receipts and maintained the line at their own cost, and the comparative inutility of the line west of Humbolt up to the time communication was re-established with the east *vid* Qu'Appelle, it is difficult to state what was the actual revenue and expenditure for maintenance of the North-West system; but so far as *maintenance expenditure* met directly by the Department, and revenue derived from officers operated directly by the Department, is concerned, we have the following figures for the year:—

	1882-83.
Revenue.....	\$ 471 44
Expenditure.....	7,306 85

The work of construction and re-construction is, however, rapidly nearing completion, and when the lines are in perfect working order, it is anticipated that the revenue will approximate to the cost of maintenance.

#### SIGNAL SERVICE.

In consequence of the lightkeepers being directly under the control of the Department of Marine and Fisheries, it was deemed advisable during the summer of 1882, to transfer this service from the Department of Public Works to the former Department under Mr. Gisborne's superintendence. A number of new stations are to be established, and the efficiency of the service is being steadily improved.

#### RECAPITULATION.

The total expenditure (including maintenance and construction), and the revenue of the telegraph service (exclusive of the North-West telegraph lines,) for the year ended 30th June, 1883, is as follows:—

1882-83.	Expenditure.	Revenue.	Deficit.
	\$ cts.	\$ cts.	\$ cts.
British Columbia system.....	30,505 69	25,093 40	5,412 29
Gulf of St. Lawrence and Maritime Provinces:—			
Anticosti Island.....	1,612 03	618 20	993 83
Magdalen Islands (including Meat Cove line).....	3,564 31	1,239 67	2,324 64
Bay of Fundy.....	1,072 71	529 46	543 25
Subsidies, stationery, repair material and contingencies, chargeable to Gulf Service generally.....	6,750 95		6,750 95
Total.....	43,505 69	27,480 73	16,024 96
The figures for 1881-82 were.....	43,147 20	20,268 14	22,879 06
And for 1878-79, British Columbia alone was.....	46,000 00	5,320 00	40,680 00

\* Construction included.

F. N. GISBORNE,  
*Superintendent Telegraph and Signal Service.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.



NOVA SCOTIA TELEGRAPH SYSTEM.  
LOW POINT, CAPE BRETON, SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cts.		
1	Lingan.....	0	.....	50 00 or com'n.....	.....	N.B.—The commission is 25 p.c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Low Point Lighthouse .....	5	St. Peter's .....	50 00 do ...	Aug. 1, 1881.	
	Totals.....	5		100 00		

Cost of land line..... \$635 00

Estimated annual maintenance and repairs :—

Land lines—Salaries and repairs ..... \$150 00 { Required in Estimates, 1883-84.

Less probable revenue..... 5 00

Balance deficit..... \$145 00

EAST COAST SECTION.

N.B.—In connection with the Signal Service a land line 208 miles in length has been erected between Canso and Halifax for a bonus of \$16,000 and is now maintained and operated by the Western Union Telegraph Company without further cost to the Government.

## TELEGRAPH AND SIGNAL SERVICE—Continued.

## BAY OF FUNDY, N.B., TELEGRAPH SYSTEM.

## GRAND MANAN SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	Memo.
	<i>Long Eddy Cable Hut, to</i>	Miles.		\$ cts.		
1	Flagg's Cove.....	3	{ H. C. Seely (D. Supt.).... Miss G. Daggett.....	420 00 50 00	Nov. 18, 1880. June 1, 1882.	N.B.—The commission is 25 p.c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Woodward's Cove.....	6	W. A. Fraser.....	50 00 or com'n....	Nov. 26, 1880.	
3	Grand Harbour.....	2	Miss Josie Cronk....	50 00 do	Jan. 18, 1881.	Seal Cove office was operated by Miss L. Fry, from 1st November, 1882, till 31st December, of same year.
4	Seal Cove.....	4½	O. McLaughlin.....	50 00 do	Jan. 1, 1883.	
5	Southern Head Lighthouse....	5½	Wood McLaughlin.....	50 00 do	Jan. 18, 1881.	
			D. McKay, Repairer.....	60 00	May 1, 1881.	
	<b>Totals.....</b>	21		730 00		

Cost of land lines..... \$2,000 00

## CABLE.

Length of cable, Long Eddy, Grand Manan, to Liberty Cove, Campobello, 7,100 naut. miles..... 8,000 00

Total.....\$10,000 00

CAMPOBELLO SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per annum.	Date of Appointment	Memo.
	<i>Liberty Cove Cable Hut, to</i>			\$ cts.		
1	Welchpool .....	7½ Miles.	G. M. Mabee.....	50 00 or com'n.	Dec. 1, 1881	This office was worked by G. M. Mabee, from 1st February to 30th April, 1881, at \$20 per month, and by G. M. Byron, at \$50 per annum, from 1st May to 30th November, 1881.
2	Eastport, Maine, U.S.A.....	½	J. Cushing .....	100 00	Dec. 26, 1881	
	Total. ....	8		150 00		

Cost of land lines..... \$ 825 00

CABLE.

Cable 1,100 nautical miles, Welchpool, Campobello to Eastport, Maine, U.S.A..... 2,100 00

Total .. \$2,925 00

TOTAL COST GRAND MANAN TELEGRAPH SYSTEM.

Land lines, 29 miles cost..... \$ 2,825 00  
Cables, 910 nautical miles cost ..... 10,100 00

Total ..... \$12,925 00

ESTIMATED COST OF ANNUAL MAINTENANCE AND REVENUE.

Land lines—Salaries and repairs..... \$1,000 00  
Cable—Repairs, probably..... 1,500 00

Total ..... \$2,500 00  
Less probable revenue ..... 750 00  
Balance deficit..... \$1,750 00

{ Required in Estimates  
1883-84.

## TELEGRAPH AND SIGNAL SERVICE—Continued.

## MAGDALEN ISLANDS TELEGRAPH SYSTEM.

## MAGDALEN ISLANDS SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		\$ cts.		
1	Amherst .....	0	Miss J. Shea .....	50 00 or com'n.	Oct. 1, 1882	N.B.—The commission is 25 per cent., upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Amherst Lighthouse.....	9	Wm. Cormier.....	50 00	June 11, 1881	
3	Etang du Nord Village .....	15	P. Pelletier.....	360 00	Dec. 1, 1881	Plus \$30 per annum for rent. General line repairer.
4	do Lighthouse.....	1	Miss O'Brien.....	50 00 or com'n.	do 1, 1881	2 wire loop.
5	House Harbour .....	8	P. Joncas .....	50 00	do 1, 1881	1 mile loop.
6	Wolf Island.....	28½	N. Clark. ....	50 00	Sept. 25, 1881	Plus \$1 per day when absent on duty.
7	Grosse Isle.....	11	A. LeBourdais, D. Supt..	500 00	Aug. 17, 1880	
8	Bird Rock .....	Cable	T. Turbille .....	50 00 or com'n.	do 20, 1881	
9	Grand Entry .....	11	Miss McPhail .....	50 00	Feb. 18, 1882	
	Total .....	83½		1210 00		MEMO.—House Harbour office was worked by Miss O'Brien from 1st January, 1881, to 30th November, 1881 and Amherst Office by Miss C. Campbell from 1st December, 1881, to 30th Sept., 1882.

Cost of above land lines complete, with instruments, at \$130 per mile ..... \$10,865 00

## CARLES.

Distance, Grosse Isle to Bird Rock, 18<sup>26</sup>/<sub>100</sub> nautical miles } At a general average cost of  
do Old Harry to Meat Cove, C.B., 54<sup>100</sup>/<sub>100</sub> do about \$1,100 per mile laid  
do Across House Harbour Gut, 1<sup>4</sup>/<sub>100</sub> do down, 73<sup>100</sup>/<sub>100</sub> miles..... 80,630 00  
Total ..... \$91,485 00

CAPE BRETON SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cis.		
1	Meat Cove.....	0	A. B. McDonald .....	420 00	Nov. 7, 1880	N.B.—The commission is 25 p.c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Aspie Bay.....	10½	R. G. Zwicker .....	50 00 or Com'n.	Aug. 1, 1882	
3	O'Neil's Harbour (½ way house)	15		50 00 do ..		
4	Ingonish, North Bay .....	9	J. M. Burke.....	360 00	April 1, 1882	General Repairer. N.B.—Ingonish office was worked by F. Brown from Jan. 1, 1881, to March 31, 1882.
5	Ingonish Harbour.....	10½		50 00 or Com'n.		
6	Indian Brook .....	23	D. McLennan.....	50 00 do ..	April 1, 1883	N.B.—This section is at present operated and maintained by the Dominion Telegraph Company, but at the cost of the Government. The agreement is for ten years (expiring 18th April, 1891), but can be cancelled on one year's notice.
7	St. Anne's South Bay .....	19		50 00 do ..		
8	Baddeck (Loop Line).....	13	Miss Dunlop. ....	50 00 do ..	Jan. 1, 1882	
9	Englishtown.. ..	6	Miss Bingham.....	50 00 do ..	July 19, 1882	
10	Kelly's Cove.....	2		50 00 do ..		
11	Big Bras d'Or.....	6		50 00 do ..		
12	North Sydney.....	12½				
	Total.....	126½		1230 00		

Cost of above land lines complete, with instruments, at \$110 per mile..... \$13,915 00

CABLE.

Crossing Big Bras d'Or, ½ nautical mile..... 550 00

\$14,465 00

TOTAL COST MAGDALEN ISLAND SYSTEM.

Land lines, 210 miles cost..... \$24,770 00

Cables, 73½ nautical miles cost..... 81,180 00

\$105,950 00

ESTIMATED COST OF ANNUAL MAINTENANCE OF MAGDALEN ISLAND SYSTEM.

Land lines. Salaries and repairs..... \$3,500 00

Cable. Repairs, say..... 1,000 00

Total..... { Required in Estimates,

Less probable revenue..... \$4,500 00 { 1883-84.

1,000 00

\$3,500 00

TELEGRAPH AND SIGNAL SERVICE—Continued.

ANTICOSTI TELEGRAPH SYSTEM.  
ANTICOSTI ISLAND SERVICE.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cts.		
1	Fox Bay .....	0	Miss E. Nickerson.....	50 00 or com'n..	Aug. 11, 1881	N.B.—The commission is 25 per cent. upon all business to and from the office; and commission guaranteed not to be less than at the rate of \$50 per annum.
2	Heath Point Lighthouse.....	23	T. Gagné.....	50 00	do .. July 20, 1881	
3	South Point Lighthouse.....	32½	W. Carter.....	50 00	do .. July 27, 1881	
4	Shallop Creek.....	17½	B. Bradley.....	50 00	do .. July 7, 1881	
5	Salt Lake.....	52½	F. Denault.....	360 00	Oct. 19, 1881	General Repairer. Plus \$1 per day when absent on duty.
6	South-West P'nt Lighthouse.	15	Miss G. Denault..... Miss G. Pope.....	50 00 or com'n.. 200 60	Sept. 1, 1882 Oct. 18, 1880	Chief Operator since 1st August, 1882. Previously received \$50 per annum.
7	Jupiter River.....	7	E. Pope .....	100 00	Aug. 1, 1881	District Superintendent. Plus \$1 per day when absent on duty.
8	Otter River.....	17½	.....	50 00 or com'n.. 50 00.	.....	Plus \$1 per day for her father when he is absent on repairing duties.
9	Becsis River .....	22	Miss A. Ascal.....	50 00	Oct. 8 1881	
10	Cape Eagle (Ellis Bay).....	10	.....	50 00	do ..	
11	West Point Lighthouse.....	14	A. Malouin .....	50 00	do .. Aug. 1, 1881	
12	English Bay .....	3	F. Cabot .....	50 00	do .. July 1, 1883	N.B.—Mr. J. A. Lebourdais was District Superintendent from 17th August, 1880, to 31st July, 1882, at \$450 per annum.
	Totals.....	214		1210 00		

Cost of land lines complete at (say) \$165 per mile .....	\$35,300 00
CABLE.	
S.W. Point Lighthouse to L'Anse à Fougère, Gaspé, 44½ nautical miles at \$1,100 laid down...	48,700 00
Total.....	\$84,000 00

GASPE.

No.	STATIONS.	Intermediate Distances.	Operators.	Salary per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cis.		
1	L'Anse à Fougère.....	.....	.....	50 00 or Com'n.....	.....	N.B.—The commission is 25 per cent. on all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Gaspé Basin .....	28	J. J. Annett.....	150 00	Oct. 16, 1881..	Plus his salary as operator for the Montreal Telegraph Company.
		28		200 00		

Cost of land line..... \$1,925 00

TOTAL COST OF ANTICOSTI TELEGRAPH SYSTEM.

Land lines, 242 miles..... \$37,225 00  
Cable, 44<sup>1</sup>/<sub>10</sub> nautical miles..... 48,700 00  
Total..... \$85,925 00

ESTIMATED COST OF ANNUAL MAINTENANCE AND REVENUE.

Land lines—Salaries and repairs..... \$3,500 00  
Cable—Repairs, say..... 500 00  
Total..... \$4,000 00 Required in Estimates,  
Less—Revenue, probably..... 500 00 1883-84.  
Balance deficit..... \$3,500 00

N.B.—In connection with the Signal Service a land line 206 miles in length has been erected between Grand Metis and Gaspé Basin for a bonus of \$16,000, and is now maintained and operated by the Great North-Western Telegraph Company without further expense to the Government.

TELEGRAPH AND SIGNAL SERVICE—Continued.  
CHICOUTIMI AND NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.  
CHICOUTIMI SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salary per Annum.	Date of Appointment.	MEMO.
		Miles.				
1	Bay St. Paul.....	0	The Operators on this line are appointed and paid by the Company operating the line.			This line was completed 1st September, 1881. This line is operated and maintained by the Great North-Western Telegraph Company, (assignees of the Montreal Telegraph Company) per agreement to that effect.
2	St. Urbain.....	9				
3	Petit Lac Ha! Ha!.....	37				
4	St. Alexis.....	31½				
5	St. Alphonse de Bagotville.....	3				
6	Chicoutimi.....	11½				
	Total.....	92				

CONSTRUCTION.  
Cost of land line complete, at \$135 per mile..... \$12,420. 00  
MAINTENANCE.  
Included in agreement with Montreal Telegraph Company for North Shore Section,  
NORTH SHORE SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salary per Annum.	Date of Appointment.	MEMO.
		Miles.				
1	Murray Bay.....	0	The Operators on this line are appointed and paid by the Company operating the line.			The line to Anse du Portage was completed 23rd July, 1881. The line to Mille Vaches was completed 7th November, 1881. One nautical mile of this distance is submarine cable.
2	St. Fidèle.....	10				
3	St. Simeon.....	11				
4	Anse du Portage.....	23				
5	Tadoussac.....	2				
6	Bergeronnes.....	15				
7	Escoumains.....	12				
8	Sault au Mouton.....	16				
9	Portneuf Village.....	11½				
10	do Lighthouse (Loop 3 miles).....	9				

The line to Betsiamits completed in September, 1882, and is being operated and maintained by the Great North Western Telegraph Company (assignees of the Montreal Company) per agreement to that effect.

This section of the North Shore line yet to be completed.		Total	
11	Sault au Rochon.....	7	
12	Betsiamits .....	31	
13	Pointe aux Outardes.....	12	
14	Manikuanan.....	15	
15	River Gobont.....	27	
16	Pointe des Monts.....	12	
17	Sept Isles.....	68	
18	River Moisy.....	19	
19	River Chaloupe.....	45	
20	Poste de Mingan.....	50	
21	Pointe aux Esquimaux.....	18	
22	Natashquan .....	64	
23	Tohshika-ka.....	18	
24	Wapitagan .....	43	
25	Mecatina.....	33	
26	Shetatica.....	50	
27	Bonne Espérance.....	49	
28	Blanc Sablon.....	24	
			693½

## CONSTRUCTION.

Cost of land line complete to Mille Vaches, at \$135 per mile.....	\$11,610 00
do do from Mille Vache to Bersimis, at \$250 per mile.....	14,625 00
Cost of one knot of cable laid across the entrance of River Saguenay, from Anse du Portage to Anse à l'Eau, near Tadoussac.....	1,100 00
Total.....	\$27,335 00

# MAINTENANCE OF CHICOUTIMI AND NORTH SHORE SECTIONS.

Per agreement (terminating five years from completion of the whole of the lines which the Company contract to build) with the Montreal Telegraph Company.....\$1,600 per annum. { Required in Estimates for 1883-84.

Plus revenue—as per Order-in-Council, No. 14,945, 22nd June, 1881—when the North Shore Section now completed to Betsimits shall have reached Pointe des Monts,

## TELEGRAPH AND SIGNAL SERVICE IN BRITISH COLUMBIA.

Office.	Intermediate Distances.	Names.	Positions.	Salaries per month.	Date of Appointment	Memo.
Victoria .....	Miles.	Miss D. A. MacLure .....	Manager and operator .....	\$ cts.	1st Dec., 1871	Repairing allowance, \$3 per day.
do .....	.....	J. A. Carmichael .....	Assistant and clerk. ....	90 00	1st Jan., 1881	To be appointed.
do .....	.....	Max. Leclaire .....	Night operator .....	65 00	.....	Repairing allowance, \$2 per day.
Cowichan .....	31	J. V. Dawson .....	Messenger .....	75 00	1st Aug., 1882	Testing station; no salary attached.
Somenos .....	8	Mrs Skinner .....	Operator .....	50 00	1st June, 1882	Repairing allowance, \$2 per day.
Chemainus .....	9	F. D. Conway .....	Operator .....	60 00	1st May, 1881	do
Nanaimo .....	25	T. S. Brown .....	Operator and repairer .....	60 00	15th May, 1882	Telephone station at Colliery Wharves.
Departure Bay .....	3½	B. H. Wake .....	Operator and repairer .....	20 00	15th Aug., 1881	Repairing allowance, \$3 do
Valdes .....	35	S. T. Mackintosh .....	do	20 00	9th May, 1882	do
Granville .....	11½	James Wilson .....	District superintendent ..	125 00	22nd May, 1880	do
New Westminster .....	.....	Wm. F. Archibald .....	Manager and operator .....	100 00	1st Jan., 1881	do
do .....	.....	Miss S. E. MacLure .....	Assistant operator .....	75 00	1st May, 1881	\$5 do
do .....	.....	Henry J. Edwards .....	Night operator .....	20 00	1st June, 1881	To be appointed.
do .....	.....	John MacLure .....	Messenger .....	.....	.....	Private line; operated by Moodyville Saw Mill Co.
Moodyville .....	36	John MacLure .....	Operator and repairer .....	60 00	1st Mar., 1865	Pius 36 miles 2nd land wire; repairing allowance, \$1 per day.
Matsqui .....	.....	John McCutcheon .....	do	50 00	15th June, 1865	Repairing allowance, \$1 per day.
Chilwack .....	22	Mrs. E. M. Daly .....	Operator .....	50 00	1st Nov., 1879	do
Hope .....	36	Alex Lindsay .....	Operator and repairer .....	50 00	1st Nov., 1871	do
Yale .....	13	James Fraser .....	Messenger and assistant ..	30 00	17th July, 1882	\$3 do
do .....	.....	J. A. LeBourdais .....	Operator and repairer .....	60 00	23rd Sept., 1882	C. P. R. Divisional Engineer's headquarters.
Boston Bar .....	25	Henry L. Good .....	Operator .....	50 00	39th Mar., 1882	\$15 per month, horse feed.
Keefe's .....	16	B. Belanger .....	Operator and repairer .....	.....	.....	\$20 per month, horse feed.
Lytton .....	16	H. A. F. MacLeod .....	Operator .....	60 00	27th May, 1880	C. P. R. Divisional Engineer's headquarters.
Drynook .....	17	Daniel O'Hara .....	Operator and repairer .....	60 00	20th April, 1882	Repairing allowance, \$3 per day.
Spence's Bridge .....	6	Geo. E. MacLeod .....	do	60 00	1st June, 1881	do
Cache Creek .....	30	Mrs. J. B. Leighton .....	Operator .....	50 00	1st Oct., 1881	do
Savona's .....	26	A. J. Venn .....	Operator and repairer .....	50 00	28th Oct., 1881	do
Kamloops .....	26	J. J. Mackay .....	do	50 00	1st Sept., 1881	do
Clinton .....	53	Wm. Walker .....	do	50 00	1st May, 1880	\$2 50 do
Bridge Creek .....	78	Henry Yeates .....	do	60 00	June, 1866	\$10 per month, horse feed.
Soda Creek .....	54½	Miss I. Barlow .....	Operator .....	47 00	20th April, 1882	do
Quesnelle .....	48	W. W. Dodd .....	do	83 33	17th Feb., 1873	Accommodation office; no salary attached.
Stanley .....	13	James Stone .....	Operator and repairer .....	.....	.....	Repairing allowance. \$3 per day.
Bakerville .....	67½	.....	.....	1,755 33	.....	.....

676½ plus 36 miles double line, 712½ miles. \$1,755.33 per month; \$21,064 per annum.

# TOTAL COST OF BRITISH COLUMBIA TELEGRAPH SYSTEM.

430 miles land lines and 16 knots of sub-marine cables purchased from Western Union Telegraph Company.....	\$24,000 00
Additional amount expended and to be expended to put land service in good order, about	12,000 00
Value of 210 miles additional new lines erected, say at a cost of \$100 per mile.....	21,000 00
New cable laid, including cost of "Electron," say 26 knots, at \$1,100 per mile.....	28,600 00
Total present value.....	\$85,600 00
Estimated expenditure, 1893-84, salaries, repairs, &c.....	\$37,000 00
Less—Revenue, probably.....	28,000 00
Balance deficit.....	\$9,000 00

## GENERAL RECAPITULATION.

Total length of land lines now in operation (exclusive of Manitoba and North-West lines, and lines on South Shore of St. Lawrence).....	1,427 miles.
Total length of cables.....	152 do
Total present valuation.....	\$425,270 00
Annual maintenance (including \$2,000 subsidy to Prince Edward Island), about.....	54,000 00
Annual revenue upon Government account, over.....	25,000 00

F. N. GISBORNE,  
*Superintendent.*

OTTAWA, 30th June, 1883.

## SUPPLEMENTARY REPORT.

TELEGRAPH LINES AND CABLES, NORTH SHORE ST. LAWRENCE,  
AND NOVA SCOTIA.

(Ref. 40,357.)

OTTAWA, 5th November, 1883.

SIR,—As an appendix to my Annual Statement for the fiscal year 1882-83, I have the honour furthermore to report:—

That the telegraph lines and cables upon the north shore of the River and Gulf of St. Lawrence have been extended eastward a further length of about eighty-eight miles as per following table of distances:—

	Cable.	Land line.
Bersimis to Point Outard, Manicouagan.....	12	...
Point Outard to Point Paradis.....	...	18
Point Paradis to Godbout.....	26	...
Godbout to Point des Monts. ....	...	18½
Point des Monts to Trinity Bay.....	...	7½
Trinity Bay, north-easterly about.....	...	6
Total.....	38	50=88 Miles.

The cable sections were laid under my direction, from the Government steamship "Newfield," and as the shore ends had to be laid in shoal water over the unprecedented distance of one and a-half and two and a-half nautical miles, the service performed was a difficult one, but nevertheless the cables were submerged without a single kink in any of them.

The land lines were constructed under my direction by day's labor in consequence of the Great North-Western Telegraph Company having declined to erect such lines under an original understanding that they were to continue the work eastward from Bersimis to Point des Monts at the rate of \$250 a mile. The construction party in charge of Mr. George E. Carter, an experienced builder (recommended by Mr. Poustie, constructing engineer of the Great North Western Telegraph Company), commenced operations on the 16th July, and continued work until the 26th October, when the weather being severe operations were suspended for the season, at a point six miles north-east of Trinity Bay, where an office has been established. Point des Monts and Godbout stations also being in operation.

Some sections of the land line were extremely difficult of construction, notably the eighteen miles between Godbout and Point des Monts, where it is carried over high and rocky mountain ranges, nevertheless the cost will not exceed \$150 or \$160 per mile, for the whole fifty miles of line and roadway constructed.

I have also to report the erection of a land line 16 miles and the submergence of two cables of one and a-half and a-quarter knots connecting the Lighthouse on Cape Sable Island with Barrington, Nova Scotia, at a cost of about \$3,500, the cables being laid from the Government steamship "Newfield," and the land lines being erected under contract with Mr. Clinch of the Western Union Telegraph Company.

I have the honour to be, Sir,  
Your obedient servant,

F. N. GISBORNE,  
*Superintendent.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

## TELEGRAPH LINES—NORTH WEST TERRITORIES.

Ref. No. 40,774.

OTTAWA, 8th November, 1883.

SIR,—I have the honour to report that I left Ottawa, August 22nd, and arrived at Winnipeg *via*, New York and Chicago, on the 26th of the same month, having meanwhile examined the Postal and Rapid systems of telegraphy, between the two latter cities, and also several systems of telephony to which I shall refer in a separate report when treating upon such subjects.

Having purchased the necessary outfit, viz: a pair of horses, harness, buckboard, &c., &c., and attended to various matters of business connected with line construction contracts in progress, I left Winnipeg for Qu'Appelle Station on Saturday, September 1st, and having completed all requirements on Monday, the 3rd, started the following morning for Fort Qu'Appelle accompanied by one man, and by Mr. Hartley Gisborne, the District Superintendent (in a single horse buckboard,) then *en route* for his new head-quarters at Battleford, as directed by the Minister of Public Works.

When at Fort Qu'Appelle, I found it necessary to make arrangements for a new station house, as Mr. Clarke then notified me that from 1st January next he should charge \$10 a month rental for a small corner in his dwelling house, plus a large estimate for fuel and light. Versus such demand, a central town lot upon which a well built two roomed house has been erected, was offered to the Government either at *cost* price, viz: \$360, or at a rental of \$8 a month and I recommend that the offer of purchase be accepted.

The land between Qu'Appelle Station and Fort Qu'Appelle (eighteen miles,) is good and well adapted for settlement, and the telegraph line has been substantially erected upon the winter trail, which is approximate to the summer route of travel.

After passing over a well watered and wooded prairie country for twenty-five miles, bad weather overtook us, and during the ensuing night our horses, though hobbled, were stolen. Our District Superintendent's pony was found next evening and a most diligent search was instituted during two subsequent days, both Indians and half-breeds being employed under a promised reward of \$50, if successful in finding them, but without avail, and I was finally necessitated to return to Fort Qu'Appelle to procure another pair of horses (under an agreement to purchase or to hire them *pro tem* if meanwhile the stolen horses were recovered). I may here state that having given due notice of the theft to the Mounted Police, and having offered the above reward they were finally produced from the hiding place, (where they had been cached in expectation of a higher reward being offered) within a week of my departure and are now in possession of our District Superintendent, who requires them for the service.

Despite such delay we arrived at the Government Model Farm at Touchwood on Sunday the 9th September. The land throughout the sixty-six miles traversed, is almost uniformly good, though somewhat marshy in spots, with plenty of good water and groves of poplar trees. The telegraph line follows the winter trail which is shorter and better adapted for line repairs during the most inclement season of the year.

After leaving Touchwood Model Farm, we traversed a well wooded and watered lay of land for about ten miles (upon which several Cree Indians had erected neat log hats and had cultivated small fields of grain), until we entered upon a treeless and, in great part, alkali plain over which the telegraph line was erected in a substantial manner for a distance of about thirty-three miles until we struck the rising, and well wooded ground of Humboldt, where the newly built telegraph line terminates and connects with the old line from Winnipeg *via* Fort Pelly (Livingston) to Edmonton, upon the abandoned northern route of the Canadian Pacific Railway.

Humboldt telegraph office is at present in a log hut which belongs to the mail contractors who now require it for their own service, and it will be necessary to erect a small station house two or three miles south of its present position, where good water and wood are abundant.

The land about Humboldt is very well suited for farming purposes, and is of inviting appearance to settlers.

Finding that the old telegraph poles were rotten and that the line could be materially shortened by following the established western trail towards Prince Albert, I entered into a written agreement with Mr. Andrew McConnell (the contractor for the Prince Albert branch line, who had also erected the poles across the Touchwood to Humboldt alkali plain), for the erection of an entirely new line of poles, using the old wire etc., for a distance of fourteen miles at \$60 a mile, and also instructed him to thoroughly repair the line, putting in alternate new poles where required as far as Clark's Crossing on the South Saskatchewan River, and for which he would be allowed a fair proportionate price, upon the certificate of our District Superintendent.

We left Humboldt on the 13th September. The trail passes over a long rolling prairie destitute of wood for thirty-two miles, when several heavy bluffs (the local name for groves of trees) are found upon rising ground where I have since had a small log shelter hut, 20 feet by 10 feet, constructed for the use of line repairers and their horses, and I may here state that such huts (where a little fire-wood and hay can be stored) are absolutely necessary for the due maintenance of the line during the winter months. They are divided into two compartments, each 10 feet by 10 feet, one with a mud chimney and log flooring for the repairers (who here meet midway between stations), the other chamber being for their shelter of the horses. The cost of these huts, including doors, and one small window is, per contract, \$125 each.

From shelter hut No. 1 the telegraph line passes over good land with occasional outlying bluffs of small poplar wood, marshes and ponds, twenty-eight miles to Clark's Crossing on the South Saskatchewan. Here, contrary to expectations, there was no ferry boat, as advertised in the newspapers, and we had to travel down the eastern bank of the river, fourteen miles to Saskatoon, the proposed future town of the Temperance Colony. At Saskatoon there were three or four framed buildings awaiting the arrival of a raft of lumber from Medicine Hat Station on the Canadian Pacific Railway, to complete them. Here we found the scow ferry destined and then *en route* for Clark's Crossing, and having embarked the three horses and two buckboards we laboured for three hours and were carried three miles down stream before we could effect a landing upon the opposite side of the river, and had then to drive back along its western bank to Clark's Crossing where we arrived long after dark.

The telegraph wire was carried across the river at Clark's, between two rotten poles since replaced by two heavy spruce spars for which I paid \$15, per contract, as they had first to be rafted up stream many miles and then hauled up the steep banks of the river there over 100 feet in altitude. From the western side of Clark's Crossing the branch telegraph line to Prince Albert starts, and it will be necessary to erect a repeating station house either upon the right or left bank of the river. Meanwhile, however, an office has been opened by Mr. Caswell, a resident telegraph operator, who, with his brother, has erected a small house upon their pre-empted farm land, about two miles north of the Crossing, and upon the Prince Albert route.

When there, the poles (poplar), furnished cost free by the Prince Albert inhabitants, had lately been delivered on the ground, and have since been erected by the contractor, Mr. Andrew McConnell, who expected to complete the connection about the end of November.

I may here state that as poplar poles rot off at the surface of the ground within two or at the longest three years, and can then be reset, shortened by three or four feet to last another season, it would be much more economical to procure spruce, hachmatack or iron poles, even at a cost of two or three dollars each, rather than to

make use of such fragile and unreliable timber, more especially as even poplar poles will now have to be transported for many miles (sometimes thirty) as the small bluffs or groves have been culled for those in use to such an extent, that little other than bean sticks can be procured within moderate hauling distances. I shall refer to this subject again at the end of this report.

Leaving Clarke's Crossing, open rolling prairie, destitute of wood, was traversed until we arrived near the elbow of the North Saskatchewan, at a flat bottomed ravine, known as Telegraph Coulee, distant thirty miles, where, also, a shelter hut (No. 2) has since been constructed, and about a ton of hay stacked for winter use.

Travelling westward nine miles, we next crossed Eagle Creek, a wild and precipitous ravine, with a clear stream of running water at its base; then came rolling prairie, capped with poplar bluffs, upon good, though sandy land, which stretched northward three or four miles to the banks of the North Saskatchewan, and then passing through several wooded, steep gulleys, we arrived at the east side of Battleford River, at 6 p.m., 18th September, 302 miles distant from Qu'Appelle station.

With the exception of one heavy fall, caused by the seat of the buckboard giving way, and by which I was much cut and bruised, the journey was accomplished without accident.

Considering the rotten condition of the poles, the telegraph line throughout was in tolerably effective condition, the wire being good, but the brackets old and split and topped with insulators of the worst description. I, therefore, at once started two or three active men to renew fallen poles and otherwise repair the line as far as practicable before snow-fall.

I may here state that the line was entirely unprovided with lumber waggons, harness, tools, &c., or with horses suitable for the service and necessary for ordinary repairs, and that I supplied such deficiencies, as far as possible, on the spot, leaving one of the heavy animals which I had procured at Fort Qu'Appelle, as a substitute for a pony which I subsequently drove through to Edmonton and Calgary, and which had hitherto been used by our District Superintendent, who here remained at his new headquarters.

It appears that the site originally surveyed for the town on the flats of the Battle River is subject to spring inundations of ice and water, and a new town, about two miles distant on the higher lands west, has been commenced and several framed buildings erected thereon, to which the post office and the inhabitants of the old site buildings were removing. Finding it impossible to procure even a small room for the District Superintendent's office, or shelter for the service horses, tenders were at once invited for a small building 12 x 24 feet, divided into two rooms (an office and bed-room) and a log stable, both since erected at the lowest of the tenders, which varied from \$600 to \$800, in consequence of the great price demanded for small logs, viz., \$1 and \$1.25 each; spruce timber being worth \$45 per 1000 feet.

The land about Battleford is good, though sandy, and the country is not ordinarily subject to summer frosts, although during this exceptional year, succulent plants and grain suffered more or less from such cause. Leaving Battleford early on 20th September with one man and one conveyance, we passed over twenty-four miles of good, light sandy soil, well wooded and watered, whereon several half-breed farmers had large fields and were then reaping very satisfactory crops. Thirteen miles west we left the main trail to Fort Pitt and travelled in a south-westerly direction, following the telegraph line (here strung with No. 11 wire only) through a wooded country for ten miles, and then through a marshy valley of unlimited grass lands of the most luxurious growth, but destitute of wood for the next twenty-five miles, when we reached Blackfoot Coulee. Feathered game, comprising grey and white geese, brant, mallard, black, spoon-bill, pie, widgeon, and teal, ducks, prairie grouse, snipe and plover were in wonderful abundance and easy of approach; but no deer, and only two prairie wolves, two foxes, a few badgers and skunks, with numerous gophers and muskrats, were seen throughout my entire journey of over 1000 miles.

For fifteen miles east and twenty-five west of Blackfoot Coulee to Grizzly Bear, the land is rolling and hilly with very little wood but excellent soil. Grizzly Bear

is a flat alkali bottom about 150 feet below the surface of the prairie and from a quarter to a half mile wide, with bluffs of poplar upon its western bank, which extend twelve or thirteen miles westward, and bring you, at thirty miles distance, to Buffalo Coulee a similar depression, each having a small creek of slightly alkaline water running through it. West of Buffalo Creek the country is also rolling and hilly, with innumerable ponds, timber bluffs, and excellent soil, until an alkaline plain and swampy ground of forty miles in extent intervenes between it and the marshy and wooded country about Hay Lake.

The telegraph line throughout this distance is in a very rotten condition, and is carried through and over lakes, and through groves of timber, now grown up, where it was formerly cut out by the C.P.R. surveyors; the wire is also small, No 11, weighing 199 lbs. only to the mile, and is strung upon brackets much split, and from small glass insulators of inferior quality.

Having met the line-repairer from Edmonton, then distant about 100 miles, I learned that the telegraph line west of Hay Lake passed through a swampy and woody country quite impassable for wheeled vehicles for eighteen miles until it entered upon the main trail between Edmonton and Calgary, and as I had to pass over that trail and could then inspect the telegraph line erected thereon, when on my return journey to Winnipeg we, per his advice, followed the Beaver Lake trail which runs north-west from a small lake fifteen miles west of Buffalo Coulee. This Beaver Lake trail for twenty-nine miles passes over rolling prairies, interspersed with several large shallow lakes, with occasional patches of wood and sections of good land, the intervening sections showing considerable alkali, and thence having crossed the headwaters of Vermillion River, a small running creek, entered upon rising ground which continued for twenty miles, the land throughout being very rich and producing grass and pea vines of luxuriant growth, until we arrived at the log huts and small clearings of two or three French Canadian half-breeds, who have settled upon the north eastern shore of Beaver Lake. This lake is a large shallow sheet of water said to be forty miles long by from five to ten broad, and frequented by countless flocks of ducks, geese and pelicans.

Four miles from these small clearings, we crossed the Beaver River, about 100 feet wide and three feet deep, when the trail for sixteen miles bends around the northern extremity of Beaver Hill woods, in which large spruce trees first greet the eye of a westward traveller. We then passed over heavy grass lands and through groves of large willow bushes for twenty miles, until we arrived at the settlement of Fort Saskatchewan, on September the 28th, having travelled 259 miles from Battleford within nine days, or an average of twenty nine miles per day, the horses being thoroughly exhausted, although drawing little over eight cwt., including men, buckboard, oats, &c.

On the north bank of the Saskatchewan (the old Hudson's Bay trading post, and the Mounted Police barracks, both considerably out of repair, being upon the south bank), the usual town, upon paper, has been laid out, and a comfortable hostelry erected thereon, by Mr. Heimish; also a new grist and saw mill, by the Messrs. Lamoureux, French Canadian settlers, of great energy and considerable mechanical skill. A few small houses comprise this embryo city, which has "great expectations" in consequence of the best crossing for a bridge over the North Saskatchewan, upon any future railway en route to the Peace River district, being in its immediate vicinity.

When here, this small but thriving community offered to supply good spruce and haematac poles, an office rent free, and an operator upon the usual commission agreement, if the Government would extend the telegraph line from Edmonton, distant eighteen miles, to the settlement.

Leaving Saskatchewan during the afternoon of the 29th, we passed over eighteen miles of good trail, through fine farming lands, many acres of which were under cultivation, until we arrived at Edmonton, which is beautifully located upon the northern bank of the River Saskatchewan here, exceedingly picturesque from its lofty and well-wooded cliff banks of over 150 feet in altitude.

The following day being Sunday, was our first day of rest since leaving Winnipeg, and on Monday, October 1st, I visited the Roman Catholic Mission of St. Albert, nine miles north of Edmonton, where the Rev. Father Le Duc, (under His Lordship the resident Bishop), the priest in charge of the material, as well as the religious well-being of the settlement, very kindly explained the progress, prosperity and contentment of one of the most interesting settlements in the North-West Territories. Here the orphans of Indians, who perished in the small-pox epidemic, have been carefully educated, not only in reading, writing and arithmetic, but also instructed—the girls in household duties, and the boys, as soon as they are strong enough, at about 14 years of age, in the cultivation of the land, &c. A large general hospital, 80 by 80 feet, and three storeys in height, in which sufferers of all creeds will be generously attended to by Sisters of Mercy, was in course of erection; all the stone and brick work, carpentering, plastering, &c., being performed in the established workshops of the Mission.

Here also, the inhabitants were anxious to have telegraphic or telephonic connection *via* Edmonton, and they volunteered to provide good spruce or hachatack poles free of cost if the Government will construct a short nine mile line to their settlement.

At Edmonton a large town has been plotted and the great bulk of lots actually disposed of at prices varying from \$50 to \$300 each, over a spaces exceeding 1,000 acres, and already over two dozen framed houses and stores have been erected thereupon.

By general consent and approval the telegraph station has lately been removed from an old and inconvenient room in the Hudson Bay Fort to a new building in a more central situation, and the operator, Mr. Taylor, is of opinion that the station will be more than self supporting when a good and reliable line has been constructed.

As far as practicable (the station being destitute of almost every necessary appliance for maintenance until my visit when such requirements were promptly furnished) the line will be put in order for winter use, by two or three active men whom I provided with a waggon, pair of horses, &c.

Leaving Edmonton on the morning of the 3rd October, we crossed the North Saskatchewan River by a wire rope ferry and mounted the high and heavily wooded banks opposite the Fort, where the last great massacre of Blackfeet Indians by their enemies the Crees, took place, and travelled along side of the telegraph line upon the main trail towards Calgary until at about eighteen or nineteen miles distant (there are no mile posts or measured distances over the trails, a desideratum which if attended to would be an immense boon to all travellers) until it branched off at right angles eastward to Hay Lake. The poles were in a great measure rotten, the wire being small, and the insulators poor, as throughout the route eastward to within 25 miles of Battleford where No. 9 wire commences. The country through which we passed was inviting and fit for settlement, timber and water being abundant. Twenty miles further on, after crossing the Pipe-stone, we arrived at the Government Model Farm upon the Big Stone Creek, where Indians are instructed in the cultivation of the soil, cattle raising, &c. Here were several full blooded Indians at work with commendable vigour, despite that impediment to hard work, their loose blankets, so universally worn by Western tribes. Very little encouragement would, I think, induce them to adopt the Mexican blanket or poncho, which leaves the arms free to work without in any manner destroying its utility as a night covering.

Three miles south of the Farm, are the Peace Hills, then rendered exceedingly picturesque by an encampment of over 150 lodges of Indians there assembled, as at Touchwood, to receive the annual treaty bounties awarded to them by a most paternal government, whose wise treatment of the aborigines it is a pleasure to witness.

Twenty seven miles south of the Government Farm the Battle River, a pebbly bottomed stream, about 150 feet wide and two or three feet in depth, is crossed, and nineteen miles further on Blind-Man's River, a some what similar stream of 100 feet

in width, well wooded with spruce, poplar, birch, &c., which continued until the Red Deer River, a swift running stream 500 feet wide, and three or four feet deep, is reached.

During this day's drive of twenty one miles the land was of extraordinary richness, the black loam being frequently over three feet in depth as seen in the test pits dug near the trail.

At the Red Deer River Crossing, considerable acreage was under cultivation, and the crops, despite unusually early frosts, had turned out well. The site upon the southern bank is a remarkably good one for either village or town, and the place will without doubt become an important centre of settlement upon the Calgary to Edmonton and Peace River route.

For twenty five miles south of Red Deer River crossing, to "Lone Pine," the land continues good with abundance of timber within moderate distance of the trail, after which you enter upon a perfectly open, treeless prairie, with little or no water until the Willow Creek Coulee, sixteen miles south of the Lone Pine, is reached, and here, even small growth poplar, is scarce. Mr Scarlett, a settler from British Columbia, has however erected a way-station house at the Creek for the accommodation of travellers.

Fifteen miles southerly, McPherson's Creek, of running water but no wood, is reached, and 29 miles additional of treeless, open, rolling and hilly prairie brings you to Calgary, distant about 185 miles from Edmonton, and certainly one of the most picturesquely beautiful places throughout the thousand miles over which I had driven my now thoroughly exhausted team of *lean* horses, despite their being carefully attended to, and regularly fed upon oats (two days only excepted), during the entire journey.

I may here state that at Calgary I was fortunate enough to make an exceedingly satisfactory sale of my entire outfit, which had cost about \$490, for the sum of \$367.50, so that my actual transport materials throughout the foregoing long journey cost less than \$125. I was also thus enabled to repurchase a necessary and thoroughly efficient outfit for our District Superintendent's service upon the lines between Qu'Appelle, Prince Albert and Battleford, at a much less cost than if I had paid freight upon the horses and much worn material back to Qu'Appelle *plus* the hire of the mare taken from Fort Qu'Appelle, and the then value of an exhausted and lean pony which was estimated at \$40 only by the Calgary purchaser of the outfit as a whole.

From Calgary I proceeded per Canadian Pacific Railway *via* Medicine Hat, Regina and Brandon to Winnipeg, and thence *via* Chicago to Ottawa, where I arrived October 29th, 1883.

In conclusion of this report I have now to add the following observations and recommendations:—

1. That the telegraph line between Qu'Appelle Station and Humboldt 151 miles, and between Clark's Crossing and Prince Albert, 95 miles, being newly built, although of poplar poles, is in good order; the wire, No. 8, weighing 376 lbs per statute mile, and the brackets and insulators being of good quality.

2. That the line between Humboldt and Clark's Crossing, 60 miles, has been rebuilt for 14 miles, and repaired for 46 miles with alternate new poles; the wire being No. 9, weighing 303 lbs to the mile, but the brackets being old, and the insulators of small and poor description.

3. That the line from Clark's Crossing to Battleford, 155 miles, is in a bad condition, the poles (poplar) being rotten; the wire, No. 9, good, but the insulators and brackets poor. It has however been placed in as good order as practicable by three repairers, for winter service.

4. That from Battleford to Edmonton, 302 miles, the line is upon its last legs, the poles being rotten, the wire, beyond twenty-five miles west of Battleford, being No. 11, weighing 199 lbs to the mile and much too weak for service, many of the brackets split, and the insulators of the poorest description.

5. That throughout the entire line there was either a marked deficiency or total absence of all necessary material for the repair and maintenance of the line; the office instruments being also ineffective.

6. That the telegraph line is rarely near the travelled trail, as it was originally erected, and has since been maintained, upon the abandoned surveyed route of the Canadian Pacific Railway, and in consequence passes through and over lakes, muskegs, and bluffs of timber which have since grown up and now bear upon the wires. The inconvenience and greatly increased difficulty of repairing such a line can hardly be over estimated, for even a poor trail is luxury in comparison with a drive over rough ground perforated with innumerable badger and gopher holes.

7. That the total revenue of the line, when transferred to the Department of Public Works, did not exceed \$50 per month, *versus* an expenditure of over \$600 per month.

8. That it was the unanimous opinion of settlers throughout the North-West that in no other manner could the Dominion Government, at such small comparative cost, so conduce to the welfare of the people, and settlement of the land, as by the establishment of an effective system of telegraphy, connecting outlying localities with the capital of Manitoba and Eastern Canada.

#### RECOMMENDATIONS.

1. That in all future telegraph lines erected by Government in the North-West No. 6 galvanized iron wire, weighing 570 pounds per statute mile, and equal to a breaking strain of 1850 lbs., be used, together with first-class insulators and good screw, oak or iron brackets or pins:

2. That wherever practicable hachmatack or spruce poles be obtained, although at a cost of not exceeding \$2 each delivered on the ground, rather than use poplar which eventually costs much more during the life-time of the better wood. And that light iron or steel poles, at a cost of not exceeding \$3 each delivered on the ground, be used throughout prairie sections which are distant from spruce or hachmatack groves of timber.

3. That telegraph stations be established at not over 100 miles apart, and that shelter huts for repairer's use be erected within 33 miles of each station, or each other.

4. That the lines between Qu'Appelle Station, on the Canadian Pacific Railway, *via* Touchwood, Humboldt and Clark's Crossing to Battleford, and between Clark's Crossing and Prince Albert, be maintained in effective working order, the poles being gradually replaced by a better class of timber or iron, as required.

5. That the 24 or 25 miles of No. 9 wire, west of Battleford, be taken down, and that the line thence to Edmonton, which passes through an almost entirely uninhabited country, one not likely to be settled or traversed by a branch railway for many years, and far south of the North Saskatchewan route of travel *via* Fort Pitt, be abandoned *in toto*.

6. That the offer of the inhabitants of Saskatchewan and of St. Albert to provide spruce and hachmatack poles, be accepted, and that a line be erected to those settlements, 18 miles and 9 miles, respectively, from Edmonton.

7. That an entirely new line, furnished with hachmatack and spruce poles, which contractors offer to deliver along the trail for \$1.40 each, be erected between Edmonton and Calgary, the distance being 180 to 185 miles.

8. That prior to the erection of such telegraph line, a new main trail probably approximate to the present one though shorter, be surveyed out between Edmonton and the most convenient station for freighters, at or near Calgary.

Finally I may add that should the foregoing recommendations meet with the approval of the Government, I am of opinion that, when established, such lines would not only be self-supporting but also at a comparatively small cost, tend very much to the prosperity of the inhabitants, and also to the more rapid settlement of the North-West; nor should it be forgotten that the Calgary to Edmonton line would be a section of its future extension to the Peace River district.

I also take the liberty of suggesting that a very small expenditure of money upon the survey and improvements of the main trails between important points of distribution, would most materially lessen the cost of freight conveyance

throughout the North-West, and, by facilitating the speed of mail delivery and passenger travel, greatly assist the immediate settlement of the country through which they run.

Probably in no country in the world could so much be effected in road making at a trifling cost, by simply gravelling (from knolls in the vicinity) the bottoms of mud creeks or sloughs, where there is no timber available for bridging, and by straightening tortuous trails which were originally made by buffaloes and wandering Indians or freighters, and since travelled by persons only too glad to follow any land mark rather than run the risk of coming across bad spots, or losing themselves in an endeavor to improve the old and unnecessarily circuitous routes.

I may here state that the telegraph line erected by the Government between Winnipeg and Port Arthur, 436 miles, having been assumed by the Canadian Pacific Railway Co., as a portion of the necessary equipment of the permanent way transferred to them, I did not inspect or report upon its condition during my late visit to the North-West Provinces.

I have the honour to be, Sir,

Your obedient servant,

F. N. GISBORNE,

*Superintendent of Telegraph and Signal Service.*

F. H. ENNIS, Esq.,

Secretary, Department of Public Works.

APPENDIX No. 23.

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# STATEMENTS

SHOWING VARIOUS

# TELEGRAPH SYSTEMS

THROUGHOUT THE WORLD,

LENGTHS OF LINES, NUMBER OF OFFICES, NUMBER OF MESSAGES, &c.

ALSO, THE

PRINCIPAL CABLES IN THE WORLD.

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## APPENDIX No. 23

## TELEGRAPH LINES THROUGHOUT THE WORLD.

Ref. No. 40,445.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 13th November, 1883.

SIR,—In accordance with instructions received from the Deputy Minister of Public Works, I have endeavoured to collect all the information I could obtain with reference to the telegraph systems of various countries, the length of lines, number of offices, number of messages sent annually, &c., and now present the result of my enquiries in tabulated form hereunto annexed. I also append a copy of a letter received from Mr. H. P. Dwight, General Manager of the Great North-Western Telegraph Company.

By reference to the tables it will be noticed that Canada possesses greater telegraphic facilities than either the United States or any European country. The number of offices in Canada is 2,259, or one to every 1,914 persons, based on the Census returns of 1881, while in Switzerland the proportion is one to every 2,500; in the United States, one to every 3,700; in Germany, one to every 4,300; in France, one to every 6,231, and in Great Britain, one to every 6,508.

Switzerland, I am told, is very exceptionally situated with regard to telegraphic business, a very large proportion of the business apparently done being the repetition of messages passing to and from other countries over Swiss lines, while the immense number of tourists who annually visit the country give employment to a greater number of summer offices than will be found in any other country.

With reference to the number of messages sent from each office, the average in Canada is 1,441; in Germany, 1,571, in Switzerland, 2,748; in France, 3,300; in the United States, 4,062, and in Great Britain 5,758. This greater average of messages is, in the older countries, due to the greater density of population, while in the United States it is, to a large extent, due to the enormous amount of speculation on the Stock and Produce Exchanges of New York, Chicago, and other large cities—millions of messages annually consisting merely of repetitions of quotations of stocks, grain, &c.

I have the honour to be, Sir,

Your obedient servant,

JNO. A. PHILLIPS.

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

GREAT NORTH-WESTERN TELEGRAPH COMPANY OF CANADA,  
GENERAL MANAGER'S OFFICE, TORONTO, 18th October, 1883.

DEAR SIR,—There are no published statements in a condensed form at present within my reach covering the information you ask for. As soon as I can procure them, I will forward the same to you. Meanwhile, I would say there are in Canada, as near as can be estimated, available and in use for public or commercial business, in round numbers, 20,000 miles of wire, and 2,000 offices or telegraph stations.

I enclose herewith a pamphlet,\* recently issued, which is attracting a good deal of attention, in which you will find some statistics of American and English tele-

\* The Western Union Telegraph Company; Its Past, Present, and Future. Published by Hotchkiss, Burnham & Co., New York, 1883.

graphs, and other matter in relation thereto, which the Minister of Public Works may find interesting.

In regard to the telegraphs of the United States you will please note that the statistics given cover the lines of only the principal Company, viz.: the Western Union; there are a number of the smaller Companies which would probably swell the figures given by about 25,000 miles of wire, and 300 or 400 offices. And all this, you will please notice, does not include the business of the Telephone Companies, which are growing with enormous rapidity, and are becoming, both in the United States and Canada to a considerable extent, a rival and competitor of the telegraph.

It will be interesting to note the comparison in the statistics of Canadian, United States and English telegraphs, to which we may point with some pride. In mileage of lines and number of offices in proportion to population, Canada exceeds England by nearly four to one. Canadian tariffs are probably the cheapest in the world, taking all things fairly into account, and will still compare favourably with the reduced rate of sixpence shortly to take effect in England.

Telegraph wire and other material we require is brought from England; duty and charges make these articles cost us from 25 to 50 per cent. higher than in England. Wages of linemen, operators and other employé are from 50 to 100 per cent. higher in Canada than in England, and messages are sent on an average three or four times as great a distance. Our repairs and maintenance are more expensive, owing to the fact that many of our lines are built in lone stretches, along bad roads and in sparsely settled districts where the wires are frequently broken by falling timber and other causes.

The Great North-Western Telegraph Company sends messages 1,200 miles for 1 shilling, and between all towns within twelve miles distant, at 15 cents. The new English rate of sixpence was passed by Parliament, but strongly opposed by the Government. After many years the English Government have finally got the system to be self-supporting at a shilling rate. To reduce the rate to sixpence, it will require twice as much business to bring the same return. This increased business requires greatly increased facilities and increased expenses of every kind. The least possible loss estimated by the Postmaster General in conducting the business under the reduced rate, even after adding these facilities and reducing the number of words in messages which he intends to do, is \$850,000 per year. I mention these matters because I see an occasional reference in our papers to the English telegraphs and their progress, and it seems to be inferred that we in Canada are some way behindhand in telegraph enterprise, although I have yet to see any comparison made to prove that this is the case.

Yours truly,

H. P. DWIGHT.

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

No. 1.—STATEMENT of various Telegraph Lines throughout the world, so far as can be ascertained, to 30th June, 1883.

Continent.	Country.	Length of Lines, Miles.	Length of Wires, Miles.	Number of Offices.	Number of Messages sent.	Proportion of population to each office.
Europe. ....	Austria, Hungary....	31,121	91,526	3,669	8,865,000	10,286
	Belgium.....	3,535	17,383	827	3,791,000	6,674
	Bulgaria.....	1,495	2,111	37	280,000	54,054
	Denmark.....	2,190	5,254	187	1,125,000	11,211
	France.....	45,878	121,696	5,885	19,466,000	6,231
	Germany.....	45,070	161,888	10,508	17,507,000	4,300
	Great Britain.....	26,289	122,785	5,443	31,346,000	6,508
	Greece.....	1,906	2,865	88	397,000	22,479
	Italy.....	16,692	55,361	2,470	6,250,000	11,522
	Luxembourg.....	192	332	23	84,000	8,913
	Montenegro.....	275	.....	11	.....	22,300
	Netherlands.....	2,448	8,789	418	3,282,000	10,215
	Norway.....	4,676	9,688	132	847,000	13,697
	Portugal.....	2,713	6,808	202	1,121,000	23,776
	Roumania.....	3,297	5,379	206	1,150,000	26,880
	*Russia.....	53,736	138,833	2,751	4,710,120	40,000
	Servia.....	1,341	1,948	67	233,000	24,925
	Spain.....	10,013	25,302	383	2,222,000	43,403
	Sweden.....	5,195	18,442	178	1,118,000	24,888
	Switzerland.....	4,114	10,033	1,139	3,130,000	2,500
	*Turkey.....	17,085	.....	417	1,344,000	54,703
		280,261	.....	35,041	.....	.....
Asia.....	China.....	24	.....	.....	.....	.....
	Cochin China.....	1,249	.....	.....	32,000	.....
	India, British.....	20,468	.....	239	1,431,000	.....
	India, Dutch.....	3,644	.....	82	391,000	.....
	Japan.....	3,929	.....	125	1,272,000	.....
	Persia.....	3,623	.....	78	500,000	.....
		32,937	.....	.....	.....	.....
Africa.....	Algeria.....	4,212	.....	106	1,007,000	.....
	Cape Good Hope.....	3,140	.....	.....	.....	.....
	Egypt.....	4,872	.....	168	.....	.....
	Orange Free State ...	1,274	.....	.....	.....	.....
	Tunis.....	599	.....	10	.....	.....
		14,097	.....	.....	.....	.....
North America.....	Dominion.....	23,320	45,728	2,259	3,256,640	1,914
	United States.....	143,940	450,000	13,538	55,000,000	3,700
	Mexico.....	10,578	.....	363	745,000	26,584
		177,838	.....	16,160	.....	.....
Central and South America.....	Argentine Republic.	7,303	.....	485	291,000	.....
	Bolivia.....	475	.....	15	.....	.....
	Brazil.....	4,657	.....	131	254,000	.....
	Chili.....	5,714	.....	118	258,000	.....
	Colombia.....	1,839	.....	36	150,204	.....
	Costa Rica.....	451	.....	16	.....	.....
	Ecuador.....	210	.....	10	.....	.....

\*Includes Asiatic possessions.

No. 1.—STATEMENT of various Telegraph Lines throughout the world, so far as can be ascertained, to 30th June, 1883.

Continent.	Country.	Length of Lines, Miles.	Length of Wires, Miles.	Number of Offices.	Number of Messages sent.	Proportion of population to each office.
Central and South America.....	Guatemala.....	1,160	.....	63	222,000	.....
	Honduras.....	649	.....	.....	.....	.....
	Nicaragua.....	400	.....	.....	.....	.....
	Paraguay.....	44	.....	.....	.....	.....
	Peru.....	1,374	.....	34	111,000	.....
	Uruguay.....	624	.....	21	38,310	.....
	Venezuela.....	334	.....	.....	.....	.....
		25,264	.....	.....	.....	.....
Australia.....	New South Wales....	7,955	.....	.....	.....	.....
	Queensland.....	5,768	.....	.....	.....	.....
	South Australia.....	4,754	.....	.....	.....	.....
	West Australia.....	1,555	.....	.....	.....	.....
	Victoria.....	3,215	.....	.....	.....	.....
	New Zealand.....	3,706	.....	.....	.....	.....
	Tasmania.....	878	.....	.....	.....	.....
		27,831	.....	675	.....	4,200
Various Islands.....	Ceylon.....	813	.....	.....	.....	.....
	Cuba.....	2,796	.....	187	.....	.....
	Hawaiian Islands.....	39	.....	.....	.....	.....
	Jamaica.....	470	.....	32	.....	.....
	Philippines.....	713	.....	37	.....	.....
	Porto Rico.....	466	.....	.....	.....	.....
		5,397	.....	.....	.....	.....

No. 2.--APPROXIMATE distances of some of the principal Main Submarine Cable Routes now in operation throughout the world. Taken from the "Map of the World's Submarine Cables," published with the General Report of the Department of Public Works, 1867 to 1882.

From.	To.	Knots.	From.	To.	Knots.
Dover.....	*Calais.....	25	Lima 7 loops).....	Valparaiso, Chili.....	1,703
Prince Edward Isl'nd	†New Brunswick . . . .	10	Florida, U.S.....	Cuba.....	125
Newfoundland.....	‡Cape Breton, N.S....	85	Cuba (12 loops). . . .	Jamaica, W. I. Isles	
Ireland.....	§Newfoundland.....	2,200		and Demerara..	2,200
do .....	do 5 sub-		Jamaica.....	Isthmus Panama.....	590
	sequent cables, each		England (2 loops)...	Gibraltar.....	1,154
	1870 knots.....	9,350	Gibraltar.....	Malta.....	1,120
Newfoundland.....	Sydney, Cape Breton.	280	Malta.....	Alexandria, Egypt...	924
do .....	do via St. Pierre.	300	Suez, Egypt.....	Aden, Arabia.....	1,460
France.....	St. Pierre Miquelon...	2,584	Aden .....	Bombay, India.....	1,818
St. Pierre.....	Massachusetts, N.S....	749	Madras, India.....	Singapore.....	1,808
England.....	Nova Scotia (direct)..	2,540	Singapore (2 loops).	Hong Kong, China...	1,595
Nova Scotia.....	Massachusetts, U.S....	500	Singapore .....	Java.....	919
England.....	Lisbon, Portugal.....	823	Java.....	Port Darwin, Aust'alia	1,131
Portugal.....	Maderia.....	613	Hong Kong (2 loops)	Japan via. Shanghai..	1,668
Maderia.....	Cape de Verdes Iles...	1,197	England (6 loops)...	Aden.....	4,658
Cape de Verdes.....	Penambuco .....	1,844	Aden .....	Zanzibar, Africa.....	1,908
Para (11 loops).....	Buenos Ayres .....	3,782	Zanzibar.....	Mozambique.....	625
Texas, U.S.....	Vera Cruz, Mexico....	738	Mozambique.....	Dalga Bay.....	966
Salina Cruz, Mexico			Dalga Bay.....	Natal .....	345
(7 loops).....	Callao and Lima Peru	3,040			
					57,377
Total Cable distance Great Britain to			China via. India....	9,979	
do do			Australia via. India....	10,334	
do do			Cape of Good Hope....	8,502	

\*First submarine Cable. Laid in 1851.

†First submarine Cable in America. Laid in 1852.

‡Second submarine Cable in America. Laid in 1856.

§First trans-Atlantic Cable. Laid in 1858.

No. 3.—PROJECTED Sub-Marine Cable Routes taken from the “Map of the World’s Sub-Marine Cables,” published with the General Report of the Department of Public Works, 1867 to 1882.

From	To	Knots.	Remarks.
England.....	Sable Island.....	2,450	Including slack, and 100 miles connection with Sable Island.
Sable Island.....	Bermuda.....	1,000	Including slack.
Bermuda.....	Jamaica.....	1,100	do and 200 miles connection <i>via</i> Bahamas.
Ireland.....	Forteau Bay, Canada .....	2,350	Including 500 miles loop to New Brunswick.
Scotland .....	Iceland.....	410	Including slack.
Iceland.....	Greenland .....	924	do
Greenland .....	Charles Island, Hudson’s Straits.....	935	do
Charles Island, Hudson’s Straits	Fort Churchill, Hudson’s Bay.....	935	do
Port Simpson, B.C .....	Unimak, Aleutian Islands.....	1,320	do
Unimak .....	Attou .....	836	do
Attou.....	Cape Lopatka, or Northern Japan .....	715	do
Cape Lopatka...	River Amoor, Russian Asia.....	550	do
Japan .....	Hong Kong, China.....	1,100	do
Hong Kong.....	New Guinea.....	2,200	do
New Guinea.....	Port Darwin.....	660	do
		17,515	

Total Cable Distance Great Britain to Russian Asia <i>via</i> Canada.....	6,650
do do China <i>via</i> Canada .....	7,920
do do Australia <i>via</i> Canada.....	10,780

## STATEMENT showing Extent and Value, and Annual Expenditure

(So far as can be definitely

LOCATION OF SYSTEM.	Owned by	Operated by	MILES IN EXTENT.		
			Wire.	Poles.	Cable
<b>Newfoundland:—</b>					
Port au Basque—Cape Ray.....	Government	Anglo-American Cable Co.	14	14	.....
<b>Nova Scotia:—</b>					
Sydney—Meat Cove .....	do ...	Western Union Tel. Co.....	126	120	$\frac{1}{2}$
Lingan—Low Point .....	do ...	do .....	5	5	.....
Halifax—Canso .....	do ...	do .....	208	208	.....
<b>North Shore, St. Lawrence:—</b>					
Murray Bay—Chicoutimi.....	do ...	Gt. North Western Tel. Co.	92	92	.....
Murray Bay—Bersimis.....	do ...	do .....	146	146	$1\frac{1}{4}$
<b>South Shore, St. Lawrence:—</b>					
Grand Métis—Gaspé Basin.....	do ...	do .....	206	206	.....
<b>Gulf of St. Lawrence:—</b>					
Anticosti Islands.....	do ...	Government .....	242	242	$44\frac{1}{2}$
Magdalen Islands.....	do ...	do .....	$85\frac{1}{2}$	$83\frac{1}{2}$	$73\frac{1}{2}$
<b>Bay of Fundy:—</b>					
Grand Manan—Eastport .....	do ...	do .....	29	29	$9\frac{1}{2}$
<b>North West Territories:—</b>					
Port Arthur—Winnipeg .....	do ...	.....	433	433	.....
Qu'Appelle—Edmonton.....	do ...	Government .....	537	537	.....
<b>British Columbia:—</b>					
Throughout the Province .....	do ...	do .....	653	653	$23\frac{1}{2}$
<b>Sum of Government Lines in Canada</b> .....			<b>2,776<math>\frac{1}{2}</math></b>	<b>2,768<math>\frac{1}{2}</math></b>	<b>152</b>

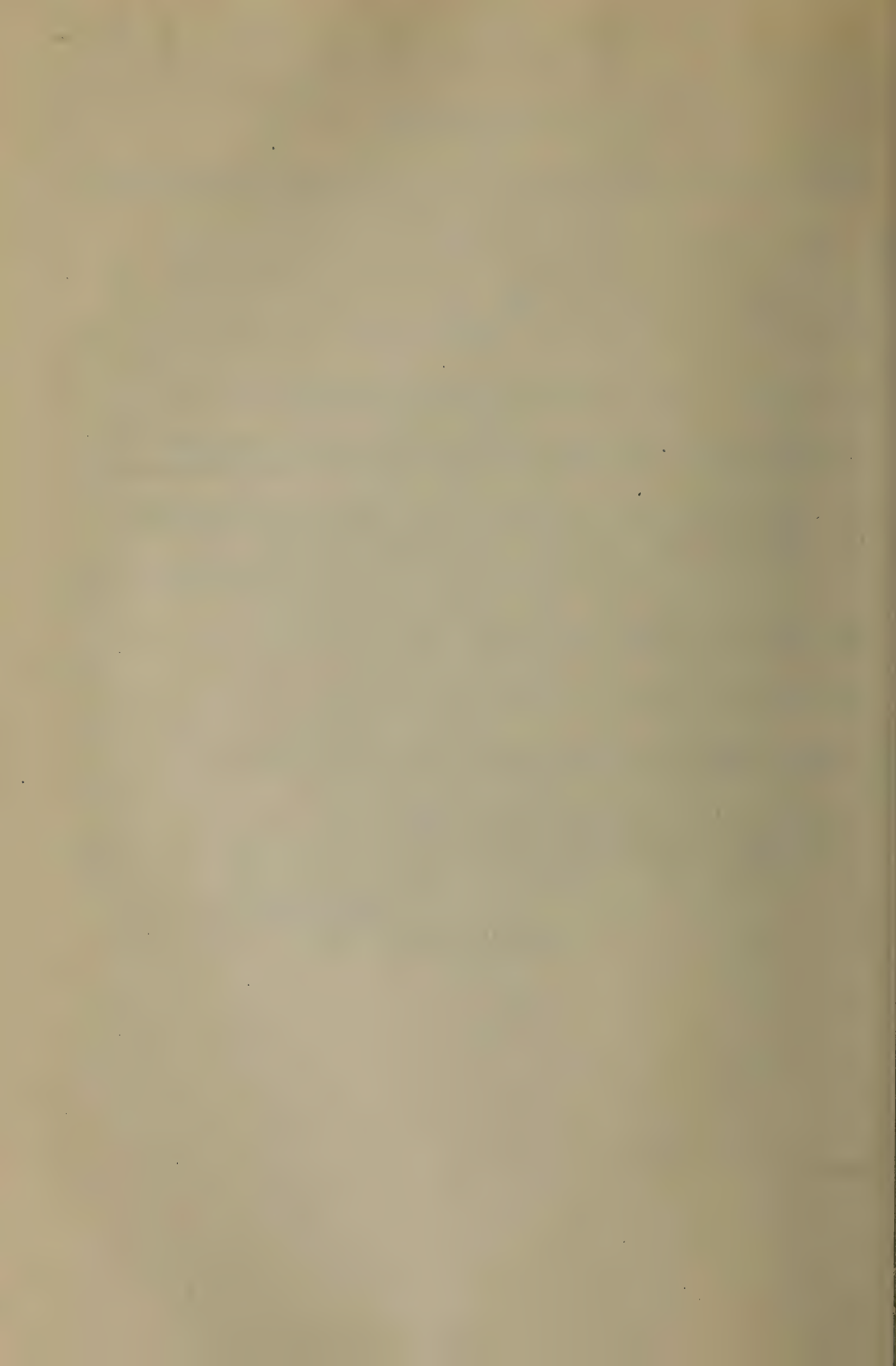
OTTAWA, 9th October, 1883.

and Revenue of the Telegraph Lines in Canada.

*ascertained at the present time.)*

CONSTRUCTION.			No. of Offices established.	PRESENT ANNUAL AVERAGE.		
Begun.	Com- pleted.	Cost.		Expen- diture.	Revenue.	
		\$		\$	\$	
Nov., 1882	Nov., 1882	.....	2	250	.....	General subsidy to Company.
Nov., 1881	Jan., 1882	14,465	7	2,500	650	Government derives revenue.
Aug., 1881	Aug., 1881	635	2	150	.....	Company derives revenue.
.....	Nov., 1881	16,000	12	.....	.....	\$16,000 is amount of Government bonus.
June, 1881	Sept., 1881	12,420	6	} 1,500	.....	Government pays annual subsidy.
June, 1881	Oct., 1882	26,335	12		.....	Company derives revenue.
.....	Nov., 1881	16,000	14	.....	.....	\$16,600 is amount of Government Bonus.
Oct., 1880	July, 1881	85,925	10	4,000	550	Not at present in operation.
Aug., 1880	June, 1881	91,485	9	2,000	450	
Nov., 1880	Feb., 1881	12,925	7	2,500	750	
1874	1878	} 426,800	.....	.....	.....	
1874	1882		5	7,100	600	
1864	1881	94,000	28	35,000	24,000	
.....	April, 1883	\$796,990	114	\$55,000	\$27,000	

F. N. GISBORNE,  
*Superintendent of Telegraph and Signal Service.*



APPENDIX No. 24.

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TABLES OF DISTANCES, Etc., Etc.

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INLAND NAVIGATION OF CANADA; OCEAN ROUTES  
THENCE TO FOREIGN COUNTRIES; CANADIAN LAND  
ROUTES TO THE SEABOARD; GOVERNMENT  
RAILWAYS AND TELEGRAPH LINES, Etc., Etc.

BY

**G. F. BAILLAIRGÉ, Deputy Minister Public Works.**

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APPENDIX No 24.

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PART I.

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TABLES OF DISTANCES, Etc.

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INLAND NAVIGATION OF CANADA.

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## APPENDIX No. 24

### PART I.

#### INDEX TO TABULAR STATEMENTS AND MEMORANDA RESPECTING DISTANCES AND INLAND NAVIGATION.

- No. 1. Table of distances, St. Lawrence navigation from Straits of Belle Ile to Duluth, at head of Lake Superior.
- No. 2. Draught of water, St. Lawrence Navigation.
- No. 3. Distances between the principal places from Montreal to Quebec, along the centre line of the ship channel.
- No. 4. St. Lawrence Navigation: Levels of river and lakes above tide water at Albany and Three Rivers, according to different authorities.
- No. 5. Levels established between low tide water at Three Rivers, and lowest observed water of Montreal Harbour at lower entrance of Old Lock No. 1, at foot of Lachine Canal.
- No. 6. Highest and lowest water levels, and depths at low water on the lower mitre sill of Old Lock No. 1, at foot of Lachine Canal, in the Harbour of Montreal, hitherto and now employed by Engineers of Harbour, Water Works, Shearer Scheme, &c.
- No. 7. St. Lawrence Navigation: Remarks respecting dredging channel between Quebec and Montreal, and the draught of water through the canals on the main line of the St. Lawrence navigation.
- No. 8. Lake navigation from head of Lake Superior to Three Rivers, length, breadth, depth, area and elevation above the sea at Three Rivers.
- No. 9. Saint Clair Flats Ship Canal.
- No. 10. St. Mary's Falls Ship Canal.
- No. 11. Table showing the smallest locks on the several lines of navigation; also the dimensions of the largest vessels which may pass through them.
- No. 12. Lake St. John: Length, breadth, area, elevation above sea, depth, winds, ice, &c.
- No. 13. River route from Tadoussac, at the mouth of the River Saguenay to the upper end of Lake St. John.
- No. 14. Statement showing number of trips, tonnage and crew of steamers which have called at Chicoutimi and at other places on the Saguenay, from 1840 to 1882 inclusively.
- No. 15. Statement of sea-going vessels which have loaded at and left the ports of the Counties of Chicoutimi and Saguenay, from 1840 to 1882 inclusively.
- No. 16. River St. Lawrence and Dawson Route: From Straits of Belle Ile to Port Arthur, on north shore of Lake Superior, and thence to Winnipeg.
- No. 17. Approximate distances from mouth of Red River down to Grand Rapids, at mouth of North or Main Saskatchewan, and thence up to Fort Edmonton.
- No. 18. Remarks respecting steamers and draught of water on route between mouth of Red River and Fort Edmonton on the Saskatchewan.
- No. 19. Navigable waters: Manitoba and North-West Territories
- No. 20. Volume of water discharged from the River Saskatchewan and from its north and south branches.
- No. 21. Names of vessels navigating the waters of Lake Manitoba and the North-West Territories.
- No. 22. Port Nelson, Hudson's Bay.
- No. 23. Table of principal rivers throughout the world, compared with the Rivers St. Lawrence and Ottawa.

(Ref. to 40,995.)

## TABLES OF DISTANCES, ETC.

## No. 1.—ST. LAWRENCE NAVIGATION.

FROM STRAITS OF BELLE-ILE TO DULUTH, AT HEAD OF LAKE SUPERIOR, BY WATER.

From	To	Sections of Navigation.	Statute Miles.	
			Inter- mediate.	Total to Straits of Belle-Ile.
Straits of Belle-Ile.....	Cape Whittle.....	Gulf of St. Lawrence.....	240	240
Cape Whittle.....	West Light, Anticosti.....	do .....	201	441
West Light, Anticosti.....	Father Point.....	River St. Lawrence.....	203	643
Father Point.....	Rimouski.....	do .....	6	649
Rimouski.....	Bic.....	do .....	12	661
Bic.....	Isle Verte.....	do .....	39	700
Ile Verte (opp Saguenay).....	Quebec.....	do .....	126	826
Quebec.....	Three Rivers.....	do to Tidewater.....	74	900
Three Rivers.....	Montreal.....	do .....	86	986
Montreal.....	Lachine.....	Lachine Canal.....	8½	994½
Lachine.....	Beauharnois.....	Lake St. Louis.....	15½	1,009½
Beauharnois.....	Ste. Cécile.....	Beauharnois Canal.....	17½	1,021
Ste. Cécile.....	Cornwall.....	Lake St. Francis.....	32½	1,053½
Cornwall.....	Dickinson's Landing.....	Cornwall Canal.....	11½	1,065½
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070½
Farran's Point.....	Upper end Croyle's Island.....	Farran's Point Canal.....	3	1,071
Upper end Croyle's Island.....	Williamsburg or Morrisburg.....	River St. Lawrence.....	10½	1,081½
Williamsburg.....	Rapide Plat.....	Rapide Plat Canal.....	4	1,085½
Rapide Plat.....	Point Iroquois Village.....	River St. Lawrence.....	4½	1,090
Point Iroquois Village.....	Upper end Presqu'île.....	Point Iroquois Canal.....	3	1,093
Presqu'île.....	Point Cardinal, Edwards- burgh.....	Junction Canal.....	2½	1,095½
Point Cardinal.....	Head of Galops Rapids.....	Galops Canal.....	2	1,097½
Galops Rapids.....	Prescott.....	River St. Lawrence.....	7½	1,105
Prescott.....	Kingston.....	do .....	59	1,164
Kingston.....	Port Dalhousie.....	Lake Ontario.....	170	1,334
Port Dalhousie.....	Port Colborne.....	Welland Canal.....	27	1,361
Port Colborne.....	Amherstburgh.....	Lake Erie.....	232	1,593
Amherstburgh.....	Windsor.....	River Detroit.....	18	1,611
Windsor.....	Foot of St. Mary's Island.....	Lake Ste. Claire.....	25	1,636
Foot of St. Mary's Island.....	Sarnia.....	River Ste. Claire.....	33	1,669
Sarnia.....	Foot of St. Joseph's Island.....	Lake Huron.....	270	1,939
Foot of St. Joseph's Island.....	Foot of Sault St. Mary.....	River St. Mary.....	47	1,986
Sault St. Mary.....	Head of Sault St. Mary.....	Sault Ste. Marie Canal.....	1	1,986
Head of Sault St. Mary.....	Point aux Pins.....	River St. Mary.....	7	1,994
Point aux Pins.....	Duluth.....	Lake Superior.....	390	2,384

Of the 2,384 miles from the Straits of Belle-Ile to the Head of Lake Superior, 71½ miles are artificial navigation, and 2,312½ open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical, or 2,234 statute miles.

The total ascent from tide-water to Lake Superior is now assumed to be not less than 602½ feet, above tide-water at Three Rivers, and 601·78 above tide-water at New York, according to the most recent information obtained up to 7th April, 1883.

For details respecting the various sections of rivers and canal navigation, viz:—the intermediate and total distances; the intermediate and total rise above tide-water; the dimensions and depth of each canal, and of each lock, &c., on the St. Lawrence route of navigation and its tributaries, &c., see tabulated profiles Nos. 4, 6, 13, 14, 15, 29 of Appendix No. 30 of General Report on Public Works, 1867 to 1882.

For dates of opening and closing of Navigation, see Appendix No. 17. G.F.B.

## No. 2.—Draught of Water—St. Lawrence Navigation.

Sections of Navigation.	Minimum depth available in 1882.	Depth when work now in progress is completed. — See Remarks at No. 7.
Dredged Channel—Quebec to Montreal—In progress .....	22	25
Lachine Canal—Enlargement nearly completed .....	9	12
Beauharnois Canal—To be enlarged or another canal to be constructed on north shore opposite .....	9	12
Cornwall Canal—Enlargement commenced in 1876 .....	9	12
Williamsburgh Canals—To be enlarged .....	9	12
Murray Canal—Now being constructed; not on main line of navigation ..	10	10
Burlington Bay Canal—Not on main line of navigation .....	10	10
Welland Canal—Enlargement completed .....	12	12
Sault Ste. Marie Canal—State of Michigan—Enlargement completed .....	16·8	16·8

## No. 3.—DISTANCES OF PLACES BETWEEN MONTREAL AND QUEBEC.

Measured in English Statute Miles along the centre line of the Ship Channel.

From.	To.	Statute Miles.	
		Inter-mediate.	Total.
Montreal, Island Wharf, opp. Custom House	Longue Pointe .....	6 $\frac{1}{2}$	6 $\frac{1}{2}$
Longue Pointe .....	Pointe aux Trembles, <i>en haut</i> .....	4	10 $\frac{1}{2}$
Pointe aux Trembles, <i>en haut</i> .....	Varennnes .....	3 $\frac{1}{2}$	13 $\frac{1}{2}$
Varennnes .....	Cap St. Michel .....	2 $\frac{1}{2}$	15 $\frac{1}{2}$
Cap St. Michel .....	Verchères .....	5 $\frac{1}{2}$	21 $\frac{1}{2}$
Verchères .....	Plum Island Light .....	1 $\frac{1}{2}$	22 $\frac{1}{2}$
Plum Island Light .....	Contrecoeur Channel, upper entrance .....	6 $\frac{1}{2}$	28 $\frac{1}{2}$
Contrecoeur Channel, upper entrance .....	Lavaltrie .....	1 $\frac{1}{2}$	30 $\frac{1}{2}$
Lavaltrie .....	Contrecoeur Channel, lower entrance ..	4 $\frac{1}{2}$	35
Contrecoeur Channel, lower entrance .....	Lanoraie .....	1 $\frac{3}{4}$	36 $\frac{3}{4}$
Lanoraie .....	Sorel, opposite Lighthouse .....	5 $\frac{7}{8}$	45
Sorel, opposite Lighthouse .....	Ile de Grace Light .....	3 $\frac{1}{2}$	48 $\frac{1}{2}$
Ile de Grace Light .....	Stone Island Light .....	3 $\frac{1}{2}$	52 $\frac{1}{2}$
Stone Island Light .....	Light-ship No. 1 .....	5 $\frac{1}{2}$	57 $\frac{1}{2}$
Light ship No. 1 .....	do No. 2 .....	2 $\frac{3}{4}$	60 $\frac{3}{4}$
do No. 2 .....	White Buoy .....	4 $\frac{3}{4}$	64 $\frac{3}{4}$
White Buoy .....	Light-ship No. 3 .....	6 $\frac{1}{2}$	71 $\frac{1}{2}$
Light-ship No. 3 .....	Port St. Francis .....	4 $\frac{1}{2}$	75 $\frac{1}{2}$
Port St. Francis .....	Three Rivers .....	6 $\frac{1}{2}$	82
Three Rivers .....	Becancour, Iron Buoy at Bend .....	5 $\frac{3}{4}$	87 $\frac{3}{4}$
Becancour, Iron Buoy at Bend .....	Champlain .....	6	93
Champlain .....	Batiscan Wharf .....	7 $\frac{1}{2}$	101 $\frac{1}{2}$
Batiscan Wharf .....	Cap Levraut .....	4	105 $\frac{1}{2}$
Cap Levraut .....	Cap à la Roche, centre of new channel ..	3 $\frac{1}{2}$	108 $\frac{3}{4}$
Cap à la Roche, centre of new channel .....	Cap Charles .....	2 $\frac{1}{2}$	111
Cap Charles .....	Richelieu Rapids .....	9	120
Richelieu Rapids .....	Platon Wharf .....	4 $\frac{3}{4}$	124 $\frac{3}{4}$
Platon Wharf .....	Ste. Croix .....	5 $\frac{1}{2}$	130 $\frac{1}{2}$
Ste. Croix .....	Ecureuils .....	1 $\frac{1}{2}$	132
Ecureuils .....	Pointe aux Trembles, <i>en bas</i> ..	7	139
Pointe aux Trembles, <i>en bas</i> .....	Cap Rouge .....	12	151
Cap Rouge .....	Quebec, Custom House Wharf .....	9 $\frac{1}{2}$	160 $\frac{1}{2}$

## No. 4.—ST. LAWRENCE NAVIGATION.

LEVELS of River and Lakes above Tide Water at Albany and Three Rivers, according to the following authorities:—

Sections of Navigation.	Above Tide Water at Albany.	Above Tide Water at Three Rivers.						
	U.S. Engineers, 1816, 1876, 1882, 1883.	Admiralty Charts, 1817, 1818, 1822, 1823.	Rubidge, 1846.	Ottawa Ship Canal Survey — Shanley, 1858.	Ottawa Ship Canal Survey — Clarke, 1859.	Department of Public Works Report, 1867.	Canal Commission Report, 1871.	Department of Public Works Report, 1882.
Albany, River Hudson.....	0·00							
Three Rivers, River St. Lawrence .....		0·00	0·00	0·00	0·00	0·00	0·00	0·00
Montreal, River St. Lawrence .....			12·75	13·00	12·75	13·25	11·00	11·75
Kingston, Lake Ontario...		1817. 232·20	234·00			234·00	234·00	240·00
Oswego do .....	245·15							
Lake Erie, Survey of 1816...	564·85							
do do 1876...	571·68							
do Report of 1882...	563·57							
do Canadian authorities.....		1818. 564·00	564·00			564·00	564·00	566·75
Lake Ste. Claire.....						572·00	568·00	570·75
Lake Huron.. ..		1822. 590·00	594·00			578·00	574·00	576·75
Georgian Bay, Lake Huron .....		1822. 594·00	594·00	572·00	574·00	578·00	578·00	576·75
Lake Michigan .....						580·00	578·00	578·75
Lake Superior, Sault Ste. Marie .....	Mean Elevation above tide water at New York. 601·78	1823. 627·00				600·00	600·00	602·75

## REMARKS.

(a.) The tide water at Albany signifies the mean low water, which is about one foot above extreme low water.—See telegram from Major D. L. Malloy, Deputy State Engineer and Surveyor, State of New York, No. 32,607, of 12th March, 1883.

## MEAN RISE AND FALL OF TIDE AT ALBANY AND NEW YORK.

(b.) According to a telegram received 23rd April, 1883, from John G. Parke, acting Chief of Engineers at Washington, U. S., the mean rise and fall of the tide at Governor's Island, Harbour of New York, is 4·40 feet, and at Albany it is 2·32 feet. See No. 33,865.

## DECLIVITY OF THE RIVER HUDSON FROM ALBANY TO NEW YORK.

(c.) According to a letter dated Washington, U. S., 1st May, 1883, from Richard D. Cutts, Assistant in charge of United States Coast and Geodetic Survey Office, the difference of level during low water, between Governor's Island, Harbour of New York, and Albany, or the total declivity between the two places, is 4·27 feet. See No. 34,047. See remarks d.e.f., next page.

## No. 5.—THREE RIVERS TO MONTREAL.

ELEVATION above lowest tide water observed at Three Rivers, as established by levels taken during the construction of the North Shore Railway, 1876 to 1879, and in February, 1883.

Designation.	Datum— North Shore Railway, Montreal and Quebec.	Rise.	
		Inter- mediate.	Above low water Three Rivers
Lowest water observed at Three Rivers by R. Steckel up to 19th September, 1881,.....	39·55	0·00	0·00
Top of S.E. corner of Richelieu Co's. wharf at Three Rivers...	56·55	17·00	17·00
Bench mark top of railway bridge, River St. Maurice, 2 miles up stream.....	90·00	33·45	50·45
Bench mark, top of railway bridge, at Terrebonne.....	81·17	8·83	41·62
Top of coping, old entrance Lock No. 1, of Lachine Canal, Montreal, distance from railway bridge, Terrebonne, about 19 miles.....	67·19	13·98	27·64
Lowest water recorded at Montreal since September, 1852: on 8th-9th November, 1879, and 6th October, 1881, at foot of Lachine Canal, old Lock No. 1.....	51·28	15·91	11·73
Top of Lower mitre sill of old Lock No. 1, at foot of Lachine Canal, Montreal.....	35·86	Depth of w'r on lower sill, Lock No. 1. 15 42	—3·69
Low water level adopted by Harbour Commissioners at present: Depth on mitre sill, 16½; previous low-water level, Harbour Commissioners: on mitre sill, 17; summer water datum of the Montreal Water Works: on mitre sill, 19.		Height of w'r above lower sill of Lock No. 1.	
Top of coping old Lock No. 1, above lower mitre sill.....	67·19	31·33	27·64
Flood level of highest water above Victoria Bridge, April, 1858.	79·61	43·75	40·66
Summer water of Flats of Lake St. Peter, 10·50 feet: corresponds to a depth of 17 feet on the lower mitre sill of Lock No. 1, Montreal.....			

## REMARKS.—Continued.

See preceding table No. 4, St. Lawrence Navigation.

(d.) The tide water at Three Rivers is the lowest water recorded up to 19th Sept., 1881. It is 17 feet below the bench mark on the south-east corner of the wharf of the Richelieu and Ontario Company at Three Rivers.—See memoranda, dated 21st February, 1883, No. 33,687.

(e.) The elevation of low water surface, 11·73, say 11·75 feet, at Montreal, above tide water at Three Rivers, represents a depth of 15·40 feet of water on top of the mitre sill of old Lock, No. 1, at foot of Lachine Canal.

(f.) The mean elevation of Lake Superior above the sea refers to the level of mean tide at New York.—See telegram from Major Farquhar, Engineer, dated Detroit, 7th April, 1883, No. 33,363.

G. F. B.

## No. 6.—HARBOURS OF THREE RIVERS AND MONTREAL.

HIGH and low water levels referred to tide water at Three Rivers and to top of lower mitre sill old Lock No. 1, at foot of Lachine Canal, Montreal,

Designation.	Datum— Montreal Harbour Engineers.	Datum— North Shore Railway Engineers.	Above top of lower mitre sill of old Lock No. 1, Lachine Canal, Montreal.	Elevation above tide water, Three Rivers
Lowest water observed at Three Rivers, 19th September, 1831.....	84·69	39·55	(—)3·69	0·00
Top of lower mitre sill, old Lock No. 1, at lower entrance of Lachine Canal.....	81·00	35·86	0·00	(—)3·69
Lowest water observed at Montreal from September, 1852, to 8th–9th November, 1879, and to 6th October, 1881.....	96·42	51·28	15·42	+11·73
Low water, Montreal Harbour, as lately adopted by Harbour Commissioners.....	97·50	52·36	16·50	+12·81
Low water, Montreal Harbour, as previously adopted.....	98·00	52·86	17·00	+13·31
Summer water datum of Montreal Water Works— T. C. Keefer.....	100·00	54·86	19·00	+15·31
Level of coping of old Lock No. 1.....	112·33	67·19	31·33	+27·64
Flood level of highest water above Victoria Bridge, April, 1858.....	124·75	79·61	43 75	+40·06
Ordinance bench mark on ramp of revetment wall in front of the Bonsecours Market— Per Engineers of Shearer scheme.....	119·63	74·49	38·63	+34·94
Per John Sutcliffe, C.E.....	119·61	74·47	38·61	+34·92
Per Montreal Harbour Engineers.....	119·57	74·43	38·57	+34·88

## No. 7.—ST. LAWRENCE NAVIGATION.

REMARKS respecting dredged channel between Quebec and Montreal, and the draught of water through the Canals on the main line of the St. Lawrence navigation.

## DREDGED CHANNEL BETWEEN QUEBEC AND MONTREAL.

According to the Report of John Kennedy, Chief Engineer of the Harbour Commissioners of Montreal, dated 18th October, 1882, the channel between Quebec and Montreal has been dredged to a depth of 25 feet, at low water, except at the following places, viz.:—

1. Cape Charles, where the shoal has been cut through to a depth of 22 feet 3 inches, but where some boulders and loose rock remain to be removed.

2. Cap à la Roche, where nearly the whole shoal has been cut through to a depth of 22 feet.

The width of the dredged portions of the channel varies from 350 to 450 feet.

See also Appendix No. 10 of General Report Department of Public Works, 1867-1882, pages 452 to 456.

For further details see No. 28,839, or Appendix No. 13 in printed Report of the Minister of Public Works, for 1881-82, pages 153, 154.

The Government are now being pressed to deepen the channel throughout from Quebec to Montreal to a depth of 27½ feet.

## CANALS—RIVER ST. LAWRENCE ROUTE.

When the enlargement of the canals was decided upon in 1871, the scale of navigation on the St. Lawrence route, was throughout fixed at an available depth of twelve feet of water. This was authorized to be carried out in 1873.

In 1875, strong representations were made of the desirability of deepening the various channels for the passage of vessels drawing fourteen feet of water.

This was assented to by the Government, and orders were accordingly given to place the foundations of all permanent structures, on those parts of the works not then under contract, at a depth corresponding to 14 feet of water on the mitre sills of the locks.

The orders thus given applied to all the principal works on the main line of navigation between Lake Erie and the City of Montreal.

The locks on the enlarged canals throughout are to be 270 feet long between the gates, 45 feet in width, and when completed, are to have a depth of 14 feet of water on the sills.

This will enable vessels of almost any ordinary build to pass, carrying fully one thousand tons burden; but as the tendency seems to be towards increasing the breadth of beam and sectional area of freight vessels, it is probable that the canals will ere long be navigated by a class of vessels capable of carrying fully 1,500 tons.

For preceding and further details, see pages 4 and 5, report of John Page, Chief Engineer of Canals, dated 16th February, 1880, published the same year.

SAULT STE. MARIE CANAL.

According to a telegram, No. 33,238, dated 5th April, 1883, from Major Farquhar, Engineer in charge of this work, the maximum lift of the new lock of the enlarged canal is 18.6 feet, and the minimum lift 16.8 feet.

G. F. BAILLAIRGÉ.  
D.M.P.W.

OTTAWA, 9th April, 1883.

No. 8.—LAKE NAVIGATION.

LAKE SUPERIOR TO TIDE-WATER.

Names of Lakes, and of Rivers connecting the same.	STATUTE MILES.			DEPTH IN FEET.		Area in Square Miles.	Elevation above sea, at Three Rivers.
	Greatest length.	Greatest breadth.	Average breadth.	Greatest.	Mean.		
							Feet.
Superior .....	390	160	80	.....	900	32,000	602½
St. Mary's River.....	35	4	1	60	30	.....	584½
Michigan .....	345	84	58	.....	1,000	22,400	578½
Green Bay .....	100	25	18	.....	500	2,000	578½
Mackinaw Straits.....	Not added below.	50					
		20	10	200	40	.....	578½
Georgian Bay.....	130	55	40	.....	500	.....	576½
Huron .....	270	105	70	900	450	23,000	576½
Ste. Claire River.....	33			50	35	.....	.....
Ste. Claire Lake.....	25	25	20	27	15	360	570½
River Detroit.....	25	3	1	37	20	.....	.....
Lake Erie.....	250	60	38	204	90	10,000	566½
Niagara River.....	25	3	1		30	.....	.....
Lake Ontario .....	190	52	40	600	412	6,700	240
Lake St. Francis .....	38	5	4	80	36	132	142
Lake St. Louis .....	15	7	5	68	30	75	58
Lake St. Peter .....	30	9	7	40	8	200	0
River St. Lawrence, connecting Lakes between Kingston and Three Rivers.	186	.....	.....	.....	20	.....	.....
Total length of Lake Navigation..	2,112	Inclusive of River portions.....				96,867	.....
do do .....	1,778	Exclusive of River portions.....				.....	.....

## No. 9.—ST. CLAIR FLATS SHIP CANAL, MICHIGAN, U. S.

EXTRACT from the Annual Report of the Chief of Engineer, U.S.A. to the Secretary of War, U.S., dated Washington, D.C., October, 1882.

"This canal was projected in 1866, the object being to afford a straight channel 300 feet wide in the clear, and 13 feet deep, and modified in 1874 so as to make the canal 200 feet wide, with a depth of 16 feet, and the amount expended to June 30, 1881, \$591,544.09, has resulted in securing a channel of this width and depth." (See Appendix 118 of the report.)

## No. 10.—ST. MARY'S FALLS SHIP CANAL.

This canal, which overcomes the rapids in the St. Mary River, connecting the waters of Lakes Huron and Superior, is situated in the State of Michigan, and was first projected in 1837. The canal was not, however, commenced until 4th June, 1853, and the first boat passed through the old canal on 18th June, 1855. Cost of old canal to 14th May, 1855, \$999,802.46. In 1870, the enlargement of the canal was commenced and it was opened to navigation on 1st September, 1881, but not completed until 1882, up to which time the cost of the enlargement had been \$2,405,000. The upper reach of the enlarged canal is 5,500 feet long; least width 108 feet; width at upper entrance 500 feet. The new lock of the enlarged canal is 515 feet long, 80 feet wide in chamber, 60 feet wide between gates, with 16 feet depth of water on sills during mean low water; total lift varies from 16½ to 18 feet. The two old locks at the foot of the canal are each 350 feet long, 70 feet wide at top, 61 feet wide at bottom of chamber, 70 feet wide between gates, with 12 feet depth of water on sills. \*

Years.	Gross Receipts.	Tonnage.	No. of Sail Vessels.	No. of Steamers.	No. of Passages.	Opened.	Closed.
	\$ cts.						
1855.....	4,374 66	106,296	.....	.....	.....	June 18.....	Nov. 23.
1856.....	7,575 78	101,458	.....	.....	.....	May 4.....	do 28.
1857.....	9,406 74	180,820	.....	.....	.....	do 9.....	do 30.
1858.....	10,848 80	219,819	.....	.....	.....	April 18.....	do 20.
1859.....	16,941 84	352,642	.....	.....	.....	May 3.....	do 28.
1860.....	24,777 82	403,657	.....	.....	.....	do 11.....	do 26.
1861.....	16,672 16	276,639	.....	.....	.....	do 3.....	do 14.
1862.....	21,607 17	359,612	.....	.....	.....	April 27.....	do 27.
1863.....	30,574 44	507,434	.....	.....	.....	do 28.....	do 24.
1864.....	34,287 31	571,438	1,045	366	1,411	May 2.....	Dec. 4.
1865.....	22,339 64	409,062	602	395	997	do 1.....	do 3.
1866.....	23,069 54	458,530	555	453	1,008	do 5.....	do 3.
1867.....	33,515 54	556,898	839	466	1,305	do 4.....	do 3.
1868.....	25,977 14	432,563	817	338	1,155	do 2.....	do 3.
1869.....	31,579 96	524,884	939	399	1,338	do 4.....	Nov. 29.
1870.....	41,896 43	690,825	1,397	431	1,828	April 29.....	Dec. 1.
1871.....	33,865 45	752,100	1,064	573	1,637	May 8.....	Nov. 29.
1872.....	41,232 44	914,735	1,212	792	2,004	do 11.....	do 26.
1873.....	44,943 18	1,204,445	1,549	968	2,517	do 5.....	do 18.
1874.....	38,922 97	1,070,857	833	901	1,734	do 12.....	Dec. 2.
1875.....	41,199 04	1,259,533	569	1,464	2,033	do 12.....	do 2.
1876.....	46,867 30	1,541,676	684	1,733	2,417	do 8.....	Nov. 26.
1877.....	44,351 43	1,439,215	1,401	1,050	2,451	do 2.....	do 30.
1878.....	49,437 00	1,667,136	1,091	1,476	2,567	April 8.....	Dec. 3.

\* See No. 41,020, telegram from H. G. Wright, Chief of Engineers, dated Washington, 28th November, 1883.

Statistics relating to years succeeding 1878 not obtained.

No. 11.—TABLE showing the smallest locks on the several lines of navigation ; also the dimensions of the largest vessels which may pass through them.

Name of canal.	Dimensions of lock in feet.			Dimensions of vessels in feet.			Tonnage of vessel.
	Length.	Breadth.	Depth of water on sills.	Length.	Breadth.	Draught of water when loaded.	
Lachine.....	270	45	12	250	44	12	1,000
Beauharnois.....	200	45	9	180	44	9	700
Cornwall.....	200	55	9	180	54	9	750
Williamsburg.....	200	45	9	180	44	9	700
Welland.....	270	45	12	250	44	12	1,000
St. Ours Lock.....	200	45	7	180	44	7	600
Chambly.....	118	23½	7	110	23	6½	230
Rideau.....	134	33	5	120	31½	4½	250
Ste. Anne's.....	200	45	9	180	44	9	700
Carillon.....	200	45	9	180	44	9	700
Grenville.....	200	45	9	180	44	9	700
Culbute.....	200	45	6	180	44	6	550
St. Peter's.....	200	49½	18	199	49	17½	1,000
<i>United States Canals.</i>							
Erie.....	110	18	7	102	17½	6½	220
Champlain.....	100	18	5	92	17½	4½	80
Sault Ste. Marie (new)...	515	80	16	490	58	16	To pass several vessels.
do (old)...	350	70	12	320	67	12	2,000

For details respecting the various canals, see tabulated profiles, Nos. 4, 5, 12, 13, 14, 15, and 29 of Appendix No. 30, in General Report on Public Works, 1867 to 1882.

#### No. 12.—LAKE ST. JOHN.

The lake is about 100 statute miles on an air line from Quebec; 41½ statute miles, by the shortest road, from Chicoutimi, and 110·97 statute miles from Tadoussac, *viâ* the Petite Décharge and the River Saguenay.

Greatest length, from Belle-Rivière, near foot of lake and at its south-east end, up to outlet of River Mistassini at the north-west end, or towards head of lake..... 27¾ statute miles.

Greatest width across the lake from outlet of the River Péribonca to the outlet of the River Ouïatchouan, or from north to south along the Meridian..... 20 statute miles.

Width on Meridian across centre of lake..... 17½ statute miles.

Contour of lake, per map of 1830, by Commissioner of Crown Lands, Quebec..... 85 statute miles.

Area of lake, per E. E. Taché, Deputy Commissioner of Crown Lands, Quebec..... 365·40 miles.

Elevation of lake above the sea, according to report of A. L. Light, Chief Engineer, Government Railways, Quebec, dated 8th March, 1881..... 278 feet.

Elevation of lake above the sea, per map of 1830..... 300 feet.

Elevation of lake above the sea, per Richardson, at mouth of Ashuapmouchouan, in June, 1870. .... 293 feet.

Depth of lake is said to vary generally from 3 feet at one mile from shore, to 12 and 54 feet at  $1\frac{1}{2}$  to 3 miles from shore, and to 60 feet towards the middle of the lake..... 3 to 60 feet.

See Note S., Part III., Appendix No. 8 of General Report on Public Works, 1867 to 1882.

Bouchette, in his Topographical Dictionary, represents the depth of the lake as being 240 feet at centre.

In spring the waters of the lake rise from 15 to 34 feet above its winter level, in the course of fifteen days.

In autumn they rise 3 to 4 feet, suddenly, during high winds, but only for periods of short duration.

The spring floods retard the cultivation of considerable tracts of land around the lake and have been the subject of great complaint.

In a letter, No. 10,666, of 29th December, 1880, from his Lordship D. Racine, Bishop of Chicoutimi, to Sir Hector L. Langevin, Minister of Public Works, it is stated that the outflow from the lake is much diminished by the Government slide and dams, at the head of the Petite Décharge, wherefore he requests the Government to improve the other outlet called the Grande Décharge.

This request was assented to and the improvement is being proceeded with.

#### *Hydrographic Survey.*

A hydrographic survey of Lake St. John was commenced by order of the Minister of Public Works, toward the beginning of July, 1883, in connection with its proposed improvement for purposes of navigation.

#### *Winds.*

The north-westerly and south-westerly winds are those to which the lake is most exposed.

#### *Ice.*

Ice begins to form in November, and the lake is afterwards frozen over so that it can be travelled upon with safety, with heavy loads, after the 10th of December.

Ice begins to disappear along the borders of the lake towards the middle of April.

The whole of the lake is free from ice towards the 12th of May.

#### *Bed of Lake,*

The bed of the lake, according to Sir William Logan and Mr. Richardson, one of his assistants, consists of limestone which crops out on the western shore.

A full description of the geological features of the Lake St. John region will be found in the Report of the Geological Survey of Canada, from its commencement to 1863, the year of its publication. See extracts in Note H., Part III, Appendix No. 8, of General Report on Public Works, 1867 to 1882.

For further details respecting climate, soil, forests, settlement, &c., Lake St John and Saguenay regions, see Appendix No. 8, General Report on Public Works, 1867 and 1882.

G. F. B.

## No. 13.—RIVER ROUTE.

From Tadoussac, at the mouth of the River Saguenay, to the upper end of Lake St. John, as measured on the Admiralty Chart corrected up to 1871, and on the Map published by the Department of Crown Lands of Quebec in 1880.

Names of Places.	DISTANCE IN MILES.		Width of River Saguenay in Miles.		On which side of River Saguenay.	Depths at centre of River Saguenay during Low Tide.	Anchorage.	Remarks.
	Per printed Sailing directions	Per Chart.	Nautical	Statute.				
Tadoussac.....	0 00	0 00	0 75	0 86	On N.E. shore...	Fathoms. 104	Anchorage....	Hills in rear 400 feet high.
Anse à l'Eau.....	0 50	0 50	0 80	0 92	do	88	do	Hills in rear 1,080 feet high...
Anse à la Barque.....	1 00	1 10	1 00	1 15	do	100	do	
St. Etienne Bay and River.....	10 50	9 00	10 35	1 15	On S.W. shore...	50	do	
Ste. Marguerite River.....	.....	13 00	14 95	1 00	On N. shore.....	72	do	
Iles St. Louis (lower end).....	17 00	14 90	17 14	1 30	4 m. from S. shore	29	do	
Ile St. Barthelemi.....	18 00	16 50	18 98	1 20	Near N. shore.....	90	do	
River Petit Saguenay.....	.....	18 50	21 28	1 30	On S. shore.....	98	do	
Anse St. Jean and River.....	24 00	21 80	25 07	2 88	do	118	do	
Cape Eternity.....	.....	28 00	32 20	2 30	On S.W. shore...	146	.....	Hills in rear of sienitic granite, 1,500 feet high.
Trinity Point.....	30 00	28 50	32 78	0 90	On N. shore.....	145	.....	
Tabiau.....	.....	32 00	36 80	1 70	On N. shore.....	142	.....	
Descente des Femmes.....	.....	35 00	40 25	1 30	On S. shore.....	118	Anchorage....	Hills of sienitic granite and gneiss.
Cap à l'Est.....	42 00	40 20	46 23	1 80	On N. shore.....	118	.....	
Midway between.....	47 50	45 00	51 75	2 18	do	80	do	Opposite Cap à l'Ouest.
Cap à l'Ouest or {	47 00	46 00	52 90	2 07	do	80	do	
Head of Baie des Ha! Ha! {	.....	46 60	53 59	1 80	In channel.....	5 near shore }	do	
Petits Ilets.....	55 00	52 40	60 26	1 20	On W. shore.....	60	do	
Pointe aux Roches.....	53 00	50 00	56 50	2 88	On N. shore.....	34	do	From Chicoutimi up to Terres Rompues the breadth of the river varies from 4 tenths to 3, 2 and 6, tenths of a statute mile in width.
Chicoutimi.....	57 00	55 00	63 25	1 84	do	2	do	From Terres Rompues up to Lake St. John the river is interrupted by numerous rapids.
River Chicoutimi.....	65 00	61 93	71 22	1 73	On S. shore.....	2 to 1	do	
River des Vases, Terres Rompues.....	.....	62 80	72 22	0 45	do	No soundings...	Tide ends.....	
.....	.....	67 15	77 22	0 20 to 0 50	On N. shore.....	do	do	
River Shipshaw.....	.....	68 02	78 22	0 58	On N. shore.....	do	do	
River aux Sabies.....	.....	69 76	80 22	0 40	do	do	do	
Grand Remous or Township line of Kinojamsi or River des Aulnaies.....	.....	73 02	83 97	0 50	On S. shore.....	do	do	

River Duclou	76.50	87.97	.....	.....	.....	do	do	.....	In a westerly direction, at E. end of Lake St. John.
River Gervais	82.58	94.97	.....	.....	.....	do	do	.....	In a N.W. direction, at E. end of Lake St. John.
Junction of Grande and Petite Décharges	86.28	99.22	.....	.....	.....	Between N. & S.	do	.....	On a direct line across Lake to its western or upper end
Mouth of Petite Décharge, at foot of Lake St. John	96.50	110.97	.....	0.50	0.58	N.E. end of Lake	do	.....	
Mouth of Grande Décharge, at foot of Lake St. John	97.58	112.22	.....	1.00	1.15	do	do	.....	
River Mistassini, <i>via</i> Grande Décharge	119.32	137.22	.....	0.65	0.75	N.W. end of Lake	do	.....	
River Mistassini, <i>via</i> Petite Décharge	118.02	135.72	.....	.....	.....	do	do	.....	
River Peribonca, <i>via</i> do do	113.45	130.47	.....	0.87	1.00	Most northerly shore of Lake.	do	.....	
River Chomouchouan do do	118.23	135.97	.....	0.44	0.50	S.W. end of Lake	do	.....	
River Ouitchouan do do	113.02	129.97	.....	.....	.....	On S. shore	do	.....	
River Metabetchouan	107.80	123.97	.....	.....	.....	do	do	.....	

NOTE.—The distances measured on the Admiralty Chart are correct. The distances given by the sailing directions in the St. Lawrence Pilot, published in 1880, from St. Etienne Bay to Chicoutimi, appear to include 1½ mile from Tadoussac down to the mouth of the Saguenay.—G.F.B.

No. 14.—STATEMENT showing number of Trips, Tonnage and Crew of Steamers which have called at Chicoutimi, and at other places on the Saguenay, from 1840 to 1882, inclusively.

Year.	Number of Trips.	Tonnage.	Crew.	Steamers.
1840.....	2	524	40	Unicorn.
1841.....	1	262	20	do
1842.....	1	250	20	North America.
1843.....	5	1,830	120	do and Alliance.
1844.....	4	1,165	90	Alliance.
1845.....	5	861	95	Pocahontas.
1846.....	6	1,128	112	Lady Colborne.
1847.....				
1848.....	3	1,620	60	Alliance.
1849.....	9	1,035	135	Rowland Hill.
1850.....	9	1,035	135	do
1851.....	9	1,035	135	do
1852.....	9	1,035	135	do
1853.....	15	2,145	225	Saguenay.
1854.....	15	2,145	225	do
1855.....	15	2,145	225	do
1856.....	15	2,145	225	do
1857.....	15	2,145	225	do
1858.....	15	2,145	225	do
1859.....	15	2,145	225	do
1860.....	15	2,145	225	do
1861.....	19	5,320	570	Magnet.
1862.....	19	5,320	570	do
1863.....	19	5,320	570	do
1864.....	21	5,880	630	do
1865.....	21	5,880	630	do
1866.....	31	8,505	930	do and Champion.
1867.....	54	27,706	2,085	do and Union.
1868.....	42	19,880	1,560	do do
1869.....	77	36,593	2,255	do do
1870.....	84	39,526	2,395	Advance, St. George, Clyde, Magnet, Union and Clyde.
1871.....	89	41,568	2,585	do do
1872.....	80	30,155	1,630	Union and Clyde.
1873.....	14	6,100	280	} St. George, Clyde, Union, Saguenay.
1874.....	91	77,208	2,730	
1875.....	81	71,148	2,400	Saguenay, Union, St. Lawrence.
1876.....	88	76,666	2,640	do do
1877.....	90	81,115	2,700	do do
1878.....	96	82,356	2,880	do do
1879.....	106	92,861	3,180	do do
1880.....	78	72,929	2,340	do and St. Lawrence.
1881.....	77	73,985	3,250	do do
1882.....	100	69,598	3,500	do Union, St. Lawrence and Chicoutimi.
1882.....	67	66,959	2,880	do and St. Lawrence.

\*In 1847 steamers were engaged conveying immigrants from Grosse Isle to Montreal.

See No 32,347, dated 2nd March, 1883, from A. Gaboury, Secretary of the St. Lawrence Steam Navigation Company, Quebec.

No. 15.—STATEMENT of Sea going Vessels which have loaded at and left the Ports of the Counties of Chicoutimi and Saguenay, from 1840 to 1882, inclusively, showing Number of Vessels, their Tonnage and Crew, for each year and each Port.

Year.	Chicoutimi.			Tadoussac.			Les Ecoumains.			Sault au Cochon.		
	No. of Ves-sels.	Tons Register.	Crew.	No. of Ves-sels.	Tons Register.	Crew.	No. of Ves-sels.	Tons Register.	Crew.	No. of Ves-sels.	Tons Register.	Crew.
1840.....												
1841.....												
1842.....												
1843.....												
1844.....												
1845.....												
1846.....												
1847.....												
1848.....												
1849.....												
1850.....												
1851.....												
1852.....	45	19,908	617									
1853.....	23	10,478	329									
1854.....	23	13,738	358									
1855.....	9	5,771	160									
1856.....	16	12,235	285									
1857.....	21	13,490	324									
1858.....	13	8,749	232									
1859.....	28	14,534	406									
1860.....	31	15,853	475									
1861.....	31	21,999	541									
1862.....	13	10,758	263									
1863.....	21	12,244	310									
1864.....	19	12,395	310									
1865.....	18	14,767	385									
1866.....	28	19,812	533									
1867.....	13	7,892	174									
1868.....	17	12,301	304									
1869.....	25	17,215	383	18	11,275	254	9	8,215	246			
1870.....	15	11,355	243	6	4,926	101						
1871.....	15	11,714	242	4	2,057	50						
1872.....	34	22,077	494	1	531	12						
1873.....	31	19,826	458	3	1,715	38						
1874.....	44	25,270	620	7	3,170	79	6	3,127	76	1	498	14
1875.....	34	17,266	442	5	2,021	57	1	654	14	6	3,275	77
1876.....	28	15,682	379	3	776	29	5	1,214	61	3	1,454	35
1877.....	27	18,093	398	5	3,215	73	1	271	91	8	4,441	101
1878.....	34	23,375	505	7	2,735	77	5	1,752	59	8	3,745	102
1879.....	34	18,160	420	6	2,583	67				5	3,631	73
1880.....	42	23,907	543	4	1,855	48	7	2,578	80	10	4,494	117
1881.....	34	19,584	431	8	4,104	96	8	3,971	104	7	3,777	85
1882.....	29	17,614	372	2	1,149	26	7	3,424	92	5	2,994	62

See No. 31,977, dated 17th February, 1883, from J. W. Dunscomb, Collector of Customs, Quebec.  
For further details see Appendix No. 8, General Report Public Works 1867-1882.

## No. 16.—RIVER ST. LAWRENCE AND DAWSON ROUTE.

No. 5.—From Straits of Belle-Ile to Port Arthur (Prince Arthur's Landing), on north shore of Lake Superior, and to Winnipeg.

From	To	Sections of route.	Statute miles.	
			Inter- mediate.	Total to Straits of Belle-Ile.
Straits of Belle-Ile.....	Quebec.....	Gulf and River St. Lawrence.	826	826
Quebec .....	Foot of Sault Ste. Marie....	River and Lakes of the St Lawrence.....	1,160	1,986
Foot of Sault Ste. Marie.	Head of Sault Ste. Marie...	Sault Ste. Marie Canal .....	1	1,987
Head of Sault Ste. Marie.	Pointe aux Pins.....	River St. Mary.....	7	1,994
Pointe aux Pins.....	Port Arthur .....	Lake Superior.....	270	2,264
Port Arthur.....	Lake Shebandowan.....	Dawson Route, by land.....	45	2,309
Lake Shebandowan.....	Foot of Rainy River.....	Dawson Route, by chain of lakes and portages.....	192	2,501
Foot of Rainy River.....	Head of Rainy River.....	Dawson Route, by Fort Frances Canal.....	$\frac{1}{2}$	2,501 $\frac{1}{2}$
Head of Rainy River .....	North-West Angle of Lake of the Woods.....	Dawson Route, by Rainy River and Lake of the Woods.....	119 $\frac{5}{8}$	2,621
North-West Angle of Lake of the Woods.....	Fort Garry, Winnipeg. ....	Dawson, Route, by land.....	95	2,716

The steamboat voyage from Collingwood to Port Arthur is..... 532 Statute miles

Length of Dawson Route, chain of lakes and portages, from Port Arthur to

Fort Garry, Winnipeg..... 452 do

Canadian Pacific Railway, from Port Arthur to Winnipeg..... 435 do

For details respecting route between Lake Superior and the Red River at Fort Garry (Winnipeg), see Reports of S. J. Dawson, O.E., dated 20th April, 1868, and 1st May, 1869, printed by order of the House of Commons of Canada, in 1868 and 1869. G. F. B.

No. 17.—TABLE of approximate distances between various points from mouth of Red River, at Head of Lake Winnipeg, down to Grand Rapid, at mouth of the North or Main Saskatchewan, towards foot of Lake, and thence along the Saskatchewan up to Fort Edmonton, as per maps published in 1878, 1880, &c.

Name of localities.	Intermediate distances.	Total distances from mouth of Red River.
<i>Lake Winnipeg.</i>	Miles.	Miles
1. Mouth of Red River to Mouth of Saskatchewan, or from Head of Lake Winnipeg down to Grand Rapid towards Foot of Lake.....	260	260
<i>North or Main River Saskatchewan.</i>		
2. Mouth of Saskatchewan, on Lake Winnipeg, at Grand Rapid up to Foot of Cedar Lake.....	20	
3. Foot to Head of Cedar Lake.....	30	
4. Head of Cedar Lake to Cumberland House.....	115	
5. Cumberland House to Tobin's Rapids.....	52	
6. Tobin's Rapids to Fort à la Corne.....	92	
7. Fort à la Corne to Forks, North and South Saskatchewan.....	14	
8. Forks of Saskatchewan to Cole's Rapid.....	9	
9. Cole's Rapid to Carlton House.....	71	
10. Carlton House to Battleford, on original Pacific Railway Line.....	110	
11. Battleford to Fort Pitt.....	95	
12. Fort Pitt to Fort Saskatchewan.....	185	
13. Fort Saskatchewan to Fort Edmonton.....	20	
Total from Mouth of Red River to Fort Edmonton, at about 30 miles above intersection of original Pacific Railway Line.....		813
		1,073

See pages 292 to 393, Note A, Appendix No. 8 of General Report on Public Works, 1867 to 1882.  
G.F.B.

### No. 18.—REMARKS.

The navigation between the mouth of Red River and Fort Edmonton is performed by three steamers of the Hudson Bay Company, one of which plys between Red River and Grand Falls, near Lake Winnipeg. These falls are impassable for vessels. Here the Company has built a tramway, about four miles in length, to overcome the falls, which involves the transshipment of passengers and freight.

A second steamer runs from the head of the falls to Carlton House, say 100 miles.

A third steamer completes the journey, thence to Fort Edmonton, 410 miles.

The entire journey of 1,073 miles is said to occupy about a fortnight.

The depth available during low water is said to be from three to four feet or less.

For further details, see Appendix, page 65, Public Works Report, 1879-80, No. 11,090.

For distances from Prince Arthur's Landing to Winnipeg and westward by Canadian Pacific Railway, see tables of Appendix No. 30, parts III. and IV., of General Report on Public Works, 1837 to 1882.—G.F.B.

## No. 19.—NAVIGABLE WATERS—Manitoba and North-West Territories.

Names of Rivers and Lakes.	Length.	Mean Width.	Mean Depth.	Remarks.
	Miles.	Feet.	Feet.	
Lake Winnipeg.....	300	.....	.....	The "Anson Northup," the first steamer commenced running in 1859.
Lakes Manitoba and Winnipegosis.....	230	.....	.....	
Red River (within Manitoba) .....	90	.....	.....	
Assiniboine River .....	350	150	4	
Souris River (Probable) .....	120	100 to 135	2 to 3½	
Qu'Appelle River and Lakes.....	200	70 to 100	2 to 4½	See No. 18. The "Lily," an iron steam-boat, belonging to the Hudson Bay Company has been running on this river during the five past years.
Long Lake.....	40	.....	.....	
Main Saskatchewan.....	400	.....	.....	
North do .....	800	.....	.....	
South do .....	1,000	750 to 2000	5 to 8	
Athabasca River and Lake .....	500	900	.....	
Peace River.....	700	.....	.....	
Mackenzie River and Slave Lake.....	1,500	1200 to 3000	20 to 300	
Little Slave Lake.....	75	.....	.....	

## No. 20.—RIVER SASKATCHEWAN.

EXTRACT FROM MACOUN'S WORK ON MANITOBA AND THE GREAT NORTH-WEST,  
PUBLISHED IN 1882.

An approximate estimate of the number of cubic feet of water passing down the South Branch, the North Branch and the Main Saskatchewan, made by Prof. H. Y. Hind, in 1858, gives the following result:—

	Cubic feet per hour.
South Branch.....	123,425,616
North Branch.....	91,011,360
Main Saskatchewan, at Fort à la Corne .....	214,441,290
“ “ near Deering River.....	206,975,000

For particulars respecting the Saskatchewan, see pages 392 to 395 of General Report on Public Works, 1867 to 1882.

For further particulars about the Saskatchewan River, see the Report made by Professor H. Y. Hind, and published by order of the Legislature of Canada, 1859.

No. 21.—NAMES of vessels which were navigating the waters of Manitoba and North-West Territories in 1878 and 1879, as per Macoun's work, published in 1882.

Name of vessel.	Name of river or lake navigated.	Canadian or American vessel.	Remarks.
Alpha .....	Assiniboine and Lower Red Riv.	Canadian ....	Owned by the Winnipeg and Western Transportation Company.
Cheyenne .....	do .....	do .....	
Swallow .....	Lower Red River	do .....	
Prince Rupert...	do .....	do .....	
Kewatin .....	do .....	do .....	
Ellen .....	do .....	do .....	Owned by the Hudson's Bay Company.
Colville .....	Lake Winnipeg.	do .....	
Northcote .....	Saskatchewan ...	do .....	
Lilly .....	do .....	do .....	
Marquette .....	Assiniboine.....	do .....	
Manitoba .....	Red River.....	American.....	Owned by the Kittson or Red River Transportation Company, who own also fourteen barges of 1,800 tons capacity.
Dakota .....	do .....	do .....	
Selkirk .....	do .....	do .....	
Minnesota .....	do .....	do .....	
Grandin .....	do .....	Independent.....	
			Owned by the Great Grandin Farm.

See Appendix No. 8, page 392 of General Report on Public Works, 1867 to 1882.

### PORT NELSON.

No. 22.—EXTRACT FROM MACOUN'S WORK ON MANITOBA AND THE GREAT NORTH-WEST, PUBLISHED IN 1882.

Port Nelson is about eighty miles nearer to Liverpool, *vid* Hudson's Straits, than is New York. It is at the mouth of a river of the first class, carrying a body of water double that of the north and south branches of the Saskatchewan combined, and it reaches the sea through a narrow depression in the Laurentides, having a descent of about twenty inches in a mile, or, in round numbers, 700 feet in a little more than 400 statute miles from the spot where it debouches from Lake Winnipeg.

Port Nelson, moreover, is about the same distance from the edge of a vast fertile region in the North-West, exceeding 200,000,000 of acres in area, as Quebec is from Toronto.

For more than 200 years, from two to five sailing vessels on an average, frequently with war ships conveying them, have sailed annually from Europe and America to Port Nelson, or other ports in Hudson's Bay, and returned with cargoes the same season *via* the only available route, Hudson's Straits.

For details respecting the navigation of Hudson's Bay, see Appendix No. 8, pages 390 to 392, General Report, 1867 to 1882.

For notes respecting the Arctic Regions and Hudson's Bay route, see pages 398 to 405 of the same report. G.F.B.

No. 23.—TABLE OF PRINCIPAL RIVERS throughout the World compared with the Rivers St. Lawrence and Ottawa.

Names.	Area of Drainage in Square Miles.	Length in Miles.	Discharge in Cubic Feet per Second.			Authority.
			Low Water	Mean.	High Water.	
Amazon .....	2,400,000	4,000	.....	.....	1,700,000	Encyclopædia Britannica
Mississippi.....	1,226,000	4,400	447,200	.....	1,270,000	C. Ellet, jun.
St. Lawrence .....	565,000	2,600	.....	900,000	.....	A. J. Russell, Esq.
Niagara .....	237,300	.....	370,589	389,000	406,000	New York State Reports.
Ganges.....	432,000	1,680	86,300	207,000	494,207	Sir C. Lyell.
Nile.....	520,200	2,240	23,100	220,000	.....	Encyclopædia Britannica
Ohio, at Wheeling..	25,000	.....	1,400	.....	260,277	C. Ellet, jun.
Thames.....	5,000	215	1,330	.....	7,900	Encyclopædia Britannica
Rhone.....	38,000	500	7,000	21,000	204,000	D'Aubuisson.
Rhine.....	88,000	700	13,400	33,700	164,000	do
Ottawa (Grenville)	80,000	700	35,000	85,000	150,000	Ottawa Survey.
French River.....	4,700	.....	9,500	.....	.....	do.

See Report of T. C. Clarke, C.E., 2nd January, 1860, on Ottawa Ship Canal Survey.

APPENDIX No. 24.

— — —  
PART II.  
— — —

TABLES OF DISTANCES, Etc.

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OCEAN ROUTES

BETWEEN THE

Principal Ports of Canada and United States,  
in North America,

AND THOSE OF

FOREIGN COUNTRIES.

APPENDIX No. 24 *Continued.*

## PART II.

## INDEX TO TABLES OF DISTANCES.

- No. 1.—Quebec to Liverpool *viâ* Straits of Belle-Ile and Malin Head, north of Ireland.
- No. 2.—Head of Lake Superior to Liverpool *viâ* Straits of Belle-Ile and north of Ireland.
- No. 3.—Quebec to Liverpool *viâ* Cape Race and Malin Head, north of Ireland.
- No. 4.—Head of Lake Superior to Liverpool *viâ* Cape Race and north of Ireland.
- No. 5.—Port Arthur (Prince Arthur's Landing), north shore of Lake Superior to Liverpool *viâ* Straits of Belle-Ile and north of Ireland.
- No. 6.—Distances to Liverpool from Halifax, N.S., St. John, N.B., Portland, Me., and Quebec.
- No. 7.—Principal sea-ports of North America to Galway, Liverpool, Havre, Havana and Rio Janeiro.
- No. 8.—Canadian and Brazilian Mail Line of Steamships.
- No. 9.—The principal ocean steam routes throughout the world, from England to the West or to North America, West Indies, South America, Asia, etc.
- No. 10.—The principal ocean steam routes throughout the world, from England to the East or to India, China, Japan and Australia by overland route.
- No. 11.—The principal ocean steam routes throughout the world, from England to the East by the Cape of Good Hope.
- No. 12.—Table of latitudes and longitudes of principal Canadian ports.
- No. 13.—Great circle or air line distances from principal ports of North America and Newfoundland to England and Japan.
- No. 14.—Definition of geographical or nautical and statute miles.

No. 1.—Quebec to Liverpool, *viâ* Straits of Belle-Ile and Malin Head, North of Ireland.

From	To	Sections of Navigation.	Geographical Miles.	Statute Miles.
Quebec .....	Saguenay.....	River St. Lawrence ...	106	122
Saguenay .....	Father Point .....	do .....	53	61
Father Point.....	Lighthouse, west end Anticosti	do .....	176	202
West end of Anticosti....	Cape Whittle, Labrador Coast.	Gulf of St. Lawrence...	175	201
Cape Whittle .....	Belle-Ile Lighthouse, east entrance of Straits .....	do .....	209	240
Belle-Ile.....	Malin Head, North of Ireland...	Atlantic Ocean.....	1,750	2,013
Malin Head .....	Liverpool.....	do and Irish Sea	192	221
Total from Quebec to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland...			2,661	3,060

No. 2.—Head of Lake Superior to Liverpool, *viâ* Straits of Belle-Ile and North of Ireland.

Sections of Navigation.	Geographical Miles.	Statute Miles.
Head of Lake Superior, at Fond-du-Lac, to Quebec.....	1 355	1,558
Quebec to Liverpool, <i>viâ</i> Straits of Belle-Ile and North of Ireland.....	2,661	3,060
Total from head of Lake Superior to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland .....	4,016	4,618
N.B.—Route <i>viâ</i> Straits of Belle-Ile shorter than <i>viâ</i> Cape Race.....	158	182

Straits of Belle-Ile, 80 miles long by 14 average breadth.

No. 3.—Quebec to Liverpool, *viâ* Cape Race and Malin Head, North of Ireland.

From	To	Sections of Navigation.	Geographical Miles.	Statute Miles.
Quebec.....	Saguenay .....	River St. Lawrence....	106	122
Saguenay.....	Father Point.....	do .....	53	61
Father Point.....	Métis Point.....	do .....	23	25
Métis.....	Cap Ste. Anne-des-Monts.....	do .....	71	82
Cap Ste. Anne-des-Monts	Cap de la Madeleine .....	do .....	46	53
Cap de-la-Madeleine .....	Fame Point.....	do .....	29	33
Fame Point.....	Cap des Rosiers.....	do .....	25	29
Cap des Rosiers.....	Cap St. Pierre de Miquelon.....	Gulf of St. Lawrence...	323	394
Cap St. Pierre de Miquelon	Cape Race .....	Atlantic Ocean .....	132	152
Cape Race.....	Malin Head.....	do do .....	1,800	2,070
Malin Head.....	Liverpool.....	do and Irish Sea	192	221
Total from Quebec to Liverpool, <i>viâ</i> Cape Race and Malin Head, North of Ireland			2,819	3,242

No. 4.—Head of Lake Superior to Liverpool, *viâ* Cape Race and North of Ireland.

Sections of Navigation.	Geographical Miles	Statute Miles.
Head of Lake Superior, at Fond-du-Lac. to Quebec.....	1,355	1,558
Quebec to Liverpool, <i>viâ</i> Cape Race and North of Ireland.....	2,819	3,242
Total from head of Lake Superior to Liverpool, <i>viâ</i> Cape Race and Malin Head, North of Ireland.....	4,174	4,800
N.B.—Route <i>viâ</i> Cape Race longer than <i>viâ</i> Straits of Belle-Ile.....	158	182

No. 5.—Port Arthur (Prince Arthur's Landing), North Shore, Lake Superior, to Liverpool, *viâ* Straits of Belle-Ile and North of Ireland.

Sections of Navigation.	Geographical Miles	Statute Miles.
Port Arthur, North Shore of Lake Superior. to Quebec.....	1,250	1,438
Quebec to Liverpool, <i>viâ</i> Straits of Belle-Ile and Malin Head, North of Ireland.....	2,661	3,060
Total from Port Arthur to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland .....	3,911	4,498
N.B.—Route <i>viâ</i> Cape Race longer than <i>viâ</i> Straits of Belle-Ile.....	158	182

No. 6.—Distance to Liverpool, from Halifax, N.S.; St. John, N.B.; Portland, State of Maine; and Quebec, as measured on Colton's Map of 1861.

Halifax to Liverpool, *via* Cape Clear.

From	To	Sections of Navigation.	Distance in Miles.	
			Geographical.	Statue.
Halifax, N. S.....	Cape Clear.....	Across Atlantic to S. W. end of Ireland....	2,200	2,530
Cape Clear.....	Liverpool.....	Up St. George's Channel.....	330	380
		Total.....	2,530	2,910

St. John to Liverpool, *via* Cape Clear.

St. John, N. B.....	Cape Sable.....	Across Bay of Fundy to S. W. end of Nova Scotia.....	180	207
Cape Sable.....	Cape Clear.....	Across Atlantic to S. W. end of Ireland...	2,310	2,656
Cape Clear.....	Liverpool.....	Up St. George's Channel.....	230	380
		Total.....	2,820	3,243

Portland to Liverpool, *via* Cape Sable and Cape Clear.

Portland, State of Maine	Cape Sable.....	Across Bay of Fundy to S. W. end of Nova Scotia.....	210	242
Cape Sable.....	Cape Clear.....	Across Atlantic to S. W. end of Ireland...	2,310	2,656
Cape Clear.....	Liverpool.....	Up St. George's Channel.....	330	380
		Total.....	2,850	3,278

Quebec to Liverpool, *via* Cape Race and North of Ireland.

Quebec.....	Cape Race.....	River and Gulf of St. Lawrence to S. W. point of Newfoundland.....	827	951
Cape Race.....	Malin Head.....	Across Atlantic to N. end of Ireland.....	1,800	2,070
Malin Head.....	Liverpool.....	Down North Channel.....	182	221
		Total.....	2,819	3,242

Quebec to Liverpool, <i>via</i> Straits of Belle-Ile and Malin Head, North of Ireland. ....	2,661	3,060
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For further details, see preceding tables of distances. G. F. B.

No. 7.—TABLE of distances from the principal seaports in North America to Galway,  
Liverpool, Havre, Havana and Rio Janeiro.

		Geographical Miles.
Louisburg, N.S., to	Galway.....	2,100
do	Liverpool.....	2,350
do	Havre.....	2,450
do	Havana.....	1,700
do	Rio Janeiro.....	5,200
Halifax, N.S., to	Galway.....	2,240
do	Liverpool.....	2,500
do	Havre.....	2,600
do	Havana.....	1,600
do	Rio Janeiro.....	5,100
St. John, N.B., to	Galway.....	2,450
do	Liverpool.....	2,700
do	Havre.....	2,800
do	Havana.....	1,550
do	Rio Janeiro.....	5,050
Quebec to	Louisburg, <i>Via</i> Cape North.....	742
do	Galway { <i>Via</i> Belle-Ile.....	2,392
	do Cape Race.....	2,700
do	Liverpool { <i>Via</i> Belle-Ile (2,651 Colton's map).....	2,649
	do Cape Race (2,819 do...)	2,808
do	Havre { <i>Via</i> Belle-Ile.....	2,810
	do Cape Race.....	2,939
do	Havana.....	2,891
do	Rio Janeiro.....	5,546
Boston to	Galway.....	2,600
do	Liverpool.....	2,895
do	Havre.....	2,993
do	Havana.....	1,530
do	Rio Janeiro.....	4,935
New York to	Galway.....	2,700
do	Liverpool.....	3,095
do	Havre.....	3,228
do	Havana.....	1,240
do	Rio Janeiro.....	4,885
Philadelphia to	Liverpool.....	3,275
do	Havre.....	3,358
do	Havana.....	1,190
do	Rio Janeiro.....	4,990
Baltimore to	Liverpool.....	3,450
do	Havre.....	3,543
do	Havana.....	1,160
do	Rio Janeiro.....	5,000
Richmond to	Liverpool.....	3,380
do	Havre.....	3,473
do	Havana.....	1,090
do	Rio Janeiro.....	4,930
New Orleans to	Liverpool.....	4,780
do	Havre.....	4,838
do	Havana.....	595
do	Rio Janeiro.....	5,315

## No. 8.—CANADIAN and Brazilian Mail Line of Steamships.

From	To	Inter- mediate Mileage.	Total Distances.	Remarks.
Montreal.....	Quebec.....	160	.....	SS. "Comte d'Eu," 2,000 tons.
Quebec.....	Gaspé.....	330	510	SS. "Tancerville," 2,000 tons.
Gaspé.....	Halifax.....	400	910	Monthly to and from Montreal in summer, and
Halifax.....	St. Thomas.....	1,584	2,494	to Halifax in winter.
St. Thomas.....	Para.....	1,326	3,820	
Para.....	Maranhao.....	390	4,210	
Maranhao.....	Ceara.....	440	4,650	
Ceara.....	Pernambuco.....	390	5,040	
Pernambuco.....	Bahia.....	430	5,470	
Bahia.....	Rio Janeiro.....	825	6,295	
		6,295	.....	

## No. 9.—The Principal Ocean Steam Routes throughout the World, with Distances in Nautical or Geographical Miles, and the average time in days, from England to the West—Canada, United States, West Indies, South America, Asia, &amp;c.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Liverpool.....	New York.....	3,046	12	
do.....	Quebec.....	2,634	10	
Southampton.....	St. Thomas (West Indies).....	3,570	14	
do.....	Jamaica do.....	4,270	17	
do.....	Colon or Aspinwall (Central America).....	4,820	19	
do.....	Panama do.....	4,860	20	
do.....	Calao (South America).....	6,250	29	
do.....	Valparaiso do.....	7,650	39	
do.....	Demerara do.....	4,460	20	
do.....	Bahia (Brazil).....	4,408	22	
do.....	Rio Janeiro (Brazil).....	5,140	26	
do.....	Buenos Ayres (La Plata).....	6,178	31	
do.....	San Francisco (by Panama).....	8,190	35	
do.....	Victoria, B C. do.....	8,950	42	
do.....	Wellington (New Zealand) (by Panama).....	11,400	48	
do.....	Yokohama (Japan) do.....	12,710	56	
do.....	Shanghai (China) do.....	13,745	61	

No. 10.—THE Principal Ocean Steam Routes throughout the World, with distances in Nautical or Geographical Miles, and the average time in Days, from England to the East—India, China, Japan and Australia, by Overland Route.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Southampton .....	Gibraltar, Europe .....	1,151	5	
do .....	Malta, Mediterranean .....	2,132	9	
do .....	Alexandria, Africa .....	2,951	14	
do .....	Suez do .....	3,203	15	
do .....	Aden do .....	4,511	21	
do .....	Bombay, India .....	6,175	30	
do .....	Galle, Ceylon, India .....	6,645	32	
do .....	Madras do .....	7,190	36	
do .....	Calcutta do .....	7,960	40	
do .....	Penang do .....	7,858	38	
do .....	Singapore do .....	8,239	40	
do .....	Hong Kong, China .....	9,676	49	
do .....	Shanghai do .....	10,546	54	
do .....	Pekin do .....	11,273	59	
do .....	Nagasaki, Japan .....	11,016	60	
do .....	Yokohama, Yedo (re-named Tokio), Japan .....	11,586	65	
do .....	King George's Sound, Australia .....	9,975	48	
do .....	Melbourne do .....	11,315	54	
do .....	Sydney do .....	11,875	57	
do .....	Auckland, New Zealand .....	13,083	64	
do .....	Otago do .....	12,423	62	

The above may be shortened 4 days by the Continental Route from London to Marseilles *via* Paris and thence to Alexandria in 9 days instead of 13, as in the above *via* Gibraltar.

No. 11 —THE Principal Ocean Steam Routes throughout the World, with Distances in Nautical or Geographical Miles, and the average time in Days. Route to the East by the Cape of Good Hope.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Southampton .....	Cape of Good Hope .....	5,850	38	
do .....	Natal .....	6,570	44	
do .....	Mauritius .....	8,162	53	
do .....	Madras, India .....	13,000	66	
do .....	Calcutta, India .....	13,770	69	
do .....	Melbourne, Australia .....	11,720	69	
do .....	Sydney do .....	12,280	64	
do .....	Otago, New Zealand .....	13,040	70	
do .....	Auckland do .....	13,540	72	
Melbourne, Australia ...	Liverpool, by Cape Horn .....	13,200	66	

No. 12.—TABLE of Latitudes and Longitudes of Principal Canadian Ports.

	North Latitude.			West Longitude.		
	°	'	"	°	'	"
Halifax, N.S., dockyard observatory.....	44	39	04	63	35	00
Louisburg, N.S., lighthouse.....	45	54	39	59	57	15
Sydney do E. Church tower.....	46	08	45	60	12	50
Pictou do tower of custom house.....	45	40	50	62	42	10
Charlottetown, P.E.I., province building.....	46	14	10	63	07	37
St. John, N.B., time ball on custom house.....	46	16	42	66	03	45
Fredericton, N.B.....	46	03	00	66	28	15
Quebec, P.Q., citadel.....	46	49	12	71	12	15
Three Rivers, P.Q.....	46	23	00	72	33	00
Montreal do.....	45	31	00	73	33	00
Ottawa, Ont.....	45	23	00	75	42	00
Kingston, Ont., city clock.....	44	15	15	76	28	30
Toronto do lighthouse on Queen's Wharf.....	43	38	20	79	28	35
Hamilton do.....	43	54	00	79	57	00
Rondeau do lighthouse, south end of east pier.....	42	15	35	81	54	25
Port Colborne, Ont., lighthouse, west pier.....	42	53	00	79	19	50
Goderich do do.....	43	45	10	81	32	30
Collingwood do do on breakwater.....	44	31	00	80	02	00
Port Arthur.....	48	24	00	89	28	00
Winnipeg, Manitoba.....	49	52	00	97	08	00
Victoria, B.C.....	48	30	00	123	25	00

## GREAT CIRCLE OR AIR LINE DISTANCES.

No. 13.—GREAT CIRCLE OR Air Line Distances in Geographical Miles, as per Map of the Dominion of Canada. Published by order of the Hon. the Minister of the Interior, the 1st November, 1878.

From	To	Miles.
Yokohama (Japan).....	Port Simpson.....	3,865
do.....	Port Moody (Burrard Inlet).....	4,374
do.....	San Francisco.....	4,470
San Francisco.....	New York.....	2,228
do.....	Montreal.....	2,202
Burrard Inlet.....	do.....	1,992
Port Simpson.....	do.....	2,194
St. John, (N'fd).....	Cape Clear.....	1,670
do.....	Tory Island.....	1,693
Montreal.....	Quebec (River St Lawrence).....	145
do.....	Cape Race (via St Paul).....	1,013
do.....	Belle-Ile.....	892
Belle-Ile.....	Tory Island.....	1,657
Cape Race.....	do.....	1,736
do.....	Cape Clear.....	1,708
Tory Island.....	Liverpool.....	240
Cape Clear.....	do.....	310
Halifax.....	Cape Race.....	470
Portland.....	do.....	767
Boston.....	do.....	808
New York.....	do.....	1,010

No. 14.—DEFINITION OF GEOGRAPHICAL OR NAUTICAL AND STATUTE MILES.

A nautical mile, or a sea mile, is the length of one minute of longitude of the earth at the equator, at the level of the sea, or the  $\frac{1}{21600}$  part of the earth's equatorial circumference. By the United States standard, and as used by the Coast Survey, its length is 1,152,664 common statute or land miles; 1855.11 metres; 2028.69 yards; or 6086.07 feet; consequently, one degree of longitude at the equator=69.160 land miles; and a land mile=0.86755 of a nautical mile. By British Standard the sea mile is about 4 ins. longer than by United States. Sometimes one minute of mean latitude is taken as a nautical mile. A minute of latitude at the equator is about 6,046 feet; and at the Poles about 6,107; the mean of which is 6,076½ feet.

Lengths of a degree of longitude in different latitudes, and at the level of the sea.

These lengths are in common land or statute miles, of 5,280 feet. Since the figure of the earth has never been *precisely* ascertained, these are but close approximations.

Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.
0	69.16	14	67.12	28	61.11	42	51.47	56	38.76	70	23.73
2	69.12	16	66.50	30	59.94	44	49.83	58	36.74	72	21.43
4	68.99	18	65.80	32	58.70	46	48.12	60	34.67	74	19.12
6	68.78	20	65.02	34	57.39	48	46.36	62	32.55	76	16.78
8	68.49	22	64.15	36	56.01	50	44.54	64	30.40	78	14.42
10	68.12	24	63.21	38	54.56	52	42.67	66	28.21	80	12.05
12	67.66	26	62.20	40	53.05	54	40.74	68	25.98	82	9.66

Intermediate ones may be found correctly by simple proportion. See Trautwine—at pages 74 and 75.

APPENDIX No. 24.  

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PART III.  

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TABLES OF DISTANCES, Etc..  

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INTERPROVINCIAL ROADS AND LAND ROUTES TO THE  
SEABOARD; GOVERNMENT RAILWAYS AND GOVERN-  
MENT TELEGRAPH LINES; TOGETHER WITH  
TABLE OF THE BRITISH POSSESSIONS  
THROUGHOUT THE WORLD; POPULA-  
TION AND EXTENT OF THE GLOBE,  
AND TABLE OF LARGEST EM-  
PIRES, Etc., Etc., Etc.

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## APPENDIX No. 24.

## PART III.

## INDEX OF TABLES OF DISTANCES, &amp;c.

- No. 1. Distances: New road, Quebec to Lake St. John.
- No. 2. Land route: Distances around Lake St. John.
- No. 3. Land route: Distances from St. Félicien, near west end of Lake St. John, to St. Jérôme at south-east end of Lake, and thence to Baie des Ha! Ha!
- No. 4. Population of the Counties of Chicoutimi and Saguenay, from Census of 1881.
- No. 5. Table of distances from Quebec to Labrador, along the north shore of the St. Lawrence.
- No. 6. Population of various settlements between Tadoussac and Labrador, on the north shore of the St. Lawrence.
- No. 7. Distances: Prince Edward Island Railway and connections.
- No. 8. Distances from Quebec to Maritime Provinces *via* Intercolonial Railway.
- No. 9. Distances from Quebec to Maritime Provinces *via* Témiscouata Road and the Railways in the Valley of the St. John.
- No. 10. Distances from Port Arthur (Prince Arthur's Landing) to Winnipeg by the Dawson route.
- No. 11. Distances from Port Arthur to Winnipeg and westward by Canada Pacific Railway.
- No. 12. Canadian Pacific Railway, completed and in operation.
- No. 13. Canadian Pacific Railway: Main Line (when completed).
- No. 14. Canadian Pacific Railway: Through distances from Halifax, Portland, &c., to Winnipeg.
- No. 15. Distances by other routes, through Chicago.
- No. 16. Table of through distances.
- No. 17. Comparative table of distances.
- No. 18. Government Telegraph lines constructed and projected. Summary showing proportions of Land and Cable Telegraph Lines, owned or operated by the Government in the several Provinces.
- No. 19. Area and Population of the Globe: Compiled as far as possible, from the last Official Census of each country.
- No. 20. Table of the British Possessions throughout the World, with their Population and Area.
- No. 21. Table of largest Empires.
- No. 22. Population of the Globe by races.
- No. 23. Population of the Globe by religions.

## No. 1—DISTANCES—New Road—Quebec to Lake St. John.

From	To	Intermediate Mileage.	Total Mileage.
Quebec.....	Boundary Post.....	15	
Boundary Post .....	1st Camp, Lachance (Stoneham).....	8	23
1st Camp, Lachance (Stoneham).....	2nd do Noël.....	11½	34½
2nd do Noël.....	3rd do Lac des Roches.....	9	43½
3rd do Lac-des-Roches.....	4th do Lake Jacques Cartier.....	14	57½
4th do Lake Jacques Cartier.....	5th do Pikauba .....	13	70½
5th do Pikauba.....	6th do Bédard.....	12	82½
6th do Bédard.....	7th do Rivière Upika.....	12	94½
7th do Rivière Upika.....	8th do do Pika.....	10½	104½
8th do do Pika.....	9th do do aux Ecores.....	11	115½
9th do do aux Ecores.....	10th do Lake Belle Rivière.....	10½	126
10th do Lake Belle Rivière .....	St. Jérôme, at lower end of Lake St. John, on south side .....	14	140
St. Jérôme .....	Chicoutimi.....	50	

Mail passes three times a week, winter and summer.

Time: 20 hours, Quebec to Lake Jacques Cartier (per mail).

do 28 hours, Lake Jacques Cartier to St. Jérôme (per mail).

Total 48 hours, Quebec to Lake St. John (per mail).

Total distance 146 miles, Quebec to Lake St. John.

## REMARKS.

## MAIL ROAD—QUEBEC TO LAKE ST. JOHN.

Messrs. Blaiklock and Daberge, Provincial Land Surveyors, first examined the country between Quebec and Lake St. John in 1847-48, for a road, but did not find a practicable route throughout.

In 1863, Messrs. Vallée and Picard located and opened, at their own expense, the first five miles of the road from Stoneham.

In 1864, with the aid of other citizens from Quebec, they continued to locate and open it as far as Lake Jacques Cartier, for a total distance of about thirty miles.

Mr. Jean Gagnon afterwards, at the request of the Reverend G. Tremblay, curate of Beauport, located the remainder of the line towards St. Jérôme, on the east side of Lake St. John, and stated that the aggregate length of the hills between Lake Jacques Cartier and Lake St. John, did not exceed three and a half miles.

In 1877, the Local Government of the Province of Quebec undertook the construction of the road, which is about twenty-four feet in width.

The depth of snow in winter varies from three to three and a-half feet.

## RAILWAY—QUEBEC TO LAKE ST. JOHN.

A railway is now in progress of construction since 1879, from Quebec to Lake St. John, running south of Lake St. Joseph, from the crossing of the River Jacques Cartier direct to St. Raymond, thence *via* River Batiscan and Lake Edward to the Township of Roberval, near the River Ouïatchouan, at Lake St. John, through a considerable extent of good agricultural and finely timbered country, and with practicable grades.

The summit intervening between the St. Lawrence and Lake St. John is 1,348 feet, and is at 123 miles from Quebec.

The summit can be surmounted by grades varying from 20 to 80 feet per mile for most of the distance, and from 80 to 132 on the remainder, say for twenty-five miles.

It is now constructed, and has been in operation during the past year, from Quebec to St. Raymond.

The length of the railway being constructed is as follows, viz. :—

	Miles.
Quebec to Lorette Junction, <i>via</i> North Shore Railway (in operation) .....	4
Lorette Junction to St. Raymond (in operation) .....	31
St. Raymond to Lake St. John (proposed) .....	144

Probable total length, when completed..... 179

In the immediate vicinity of the railway there are six millions of acres of land, out of which three millions are reported as being well adapted for settlement.

See report of A. L. Light, Engineer-in-Chief of Government Railways, Province of Quebec, dated 9th March, 1881, in answer to an Order of the House of Commons, dated 14th February, 1881.

For progress of work and funds granted towards its construction, see Appendix No. 8, page 348, and Appendix No. 30, pages 861, 862 of General Report on Public Works 1867 to 1882, viz. :—

\$384,000 by Federal Government, by Act 45 Vic., cap. 14, passed in 1882.

\$350,000 by Municipal Council, Quebec, under by law of 9th February, 1883.

The Provincial Government of Quebec have granted \$5,000 in money and 5,000 acres of land per mile, on 170 miles, by Act 45 Vic., cap. 23, of 1882, and previous Acts passed.

See also No. 33,360, 9th April 1883, from J. G. Scott, Secretary Lake St. John Railway Company. G.F.B.

## LAND ROUTE.

No. 2.—DISTANCES around Lake St. John, as measured on the Map published by the Department of the Crown Lands, Quebec, in June, 1880.

Names of Places.	Inter- mediate Distances.	Total Distances.	Remarks.
	Statute Miles.	Statute Miles.	
Mouth of Petite Décharge .....			At E. end of Lake St. John.
St. Gédéon-de-Grand Mont. ....	4·00	4·00	do By road not completed.
Mouth of Belle-Rivière .....	3·50	7·50	do By Shore Road.
St. Jérôme .....	4·50	12·00	At S.E. do do
Mouth of River Metabetchouan.....	6·00	18·00	On S. side of Lake St. John by Shore Road.
Pointe aux Trembles, or St. Louis-de- Chambord .....	5·00	23·00	On S. do do do
Mouth of River Ouïatchouan.....	4·50	27·50	On S. do do do
Notre-Dame-du-Lac, or Roberval.....	6·00	33·50	On W. do do do
Pointe Bleue Mission, Branch Road....	See below.		
St. Prime, on S. side River aux Iroquois	8·00	41·50	On S.W. do do do
St. Félicien, on S. side of River Cho- mouchouan .....	See below.		
Outlet of River Chomouchouan.....	1·50	43·00	At S.W. end do do
Outlet of River Mistassini.....	5·50	48·50	At N.W. do do do
Outlet of River Peribonca .....	10·50	59·00	Northernmost end of Lake St. John, no road
Mouth of Grande Décharge.....	19·25	78·25	N.E. end, or foot of do do
Mouth of Petite Décharge.....	2·50	80·75	At E. end do do do
From Notre-Dame-du-Lac, going north, to Pointe Bleue Mission or the Indian Reserve.....	4·50		On S.W. side of Lake St. John.
From St. Prime to St. Félicien on the S. side of the River Chomouchouan, fol- lowing the shortest road to the river, and afterwards going up the river...	7·50		St. Félicien is seven miles above outlet of River Chomouchouan.
Distance by direct unfinished road.....	8·50		Eight and one-half miles from St. Prime to St. Félicien by shortest, unfinished road shown on map of 1880.

G. F. B.

## LAND ROUTE.

No. 3 — DISTANCES from St. Félicien, near upper or west end of Lake St. John, to St. Jérôme at south-east end of lake, and thence by the shortest post route to the Baie des Ha! Ha! as measured on the map published by the Department of Crown Lands, Quebec, in June, 1880.

Names of Places.	Inter- mediate Distances.	Total Distances.	Remarks.
	Statute Miles.	Statute Miles.	
St. Félicien.....	8.50	38.00	On S. side of River Chomouchouan, seven miles above its outlet at S. W. or upper end of Lake St. John.
St. Prime.....	8.00	29.50	At S. W. end of Lake St. John. Shore Road.
Pointe Bleue Mission—Indian Reserve.....	6.60	21.50	Branch road 4½ mls. north from Notre Dame
Notre-Dame-du-Lac, or Roberval.....	4.50	15.50	On S. W. side of Lake St. John. Shore Road.
Mouth of River Ouïatchouan.....	5.00	11.00	On S. shore do do
Pointe aux Trembles, or St. Louis de Chambord.....	6.00	6.00	On S. side do do
• Mouth of River Metabetchouan.....	0.00	0.00	do do do
St. Jérôme (see note below).....	9.50	9.50	At S. E. end do do
Hébertville.....	14.50	24.00	By the most direct road eastward.
St. Syriac-de-Kaskouia (see note).....	14.75	38.75	By road on N. side of Lake Kinogami.
Grand Brûlé do.....	12.00	50.75	do do
Chicoutimi do.....	10.00	60.75	By road on W. side of River Chicoutimi.
St. Alphonse-de-Bagotville.....	2.50	63.25	At head or W. end of Baie des Ha! Ha! by shortest road southward
St. Alexis-de-la-Grande-Baie.....			At S. W. end of Baie des Ha! Ha! by the shortest road southward
N.B.			
St. Syriac de Kaskouia to St. Dominique, on east side of Rivière aux Sables.....	10.50		Road is along W. side of Rivière aux Sables.
St. Syriac de Kaskouia to Chicoutimi, by road along west side of Rivière aux Sables, except upper portion.....	20.50		Six and one quarter miles shorter than road passing by way of Grand Brûlé.
Grand Brûlé to St. Dominique.....	16.50		By road up River Chicoutimi and down Rivière aux Sables.
Head of Baie des Ha! Ha! below Chicoutimi.....	24.30		By water route.
Head of Baie des Ha! Ha! above Tadoussac.....	60.26		do

REMARK.—The mileage, in the first portion of the above table, is given from St. Jérôme going upward to St. Félicien, and from St. Jérôme going downward to St. Alphonse.

G.F.B.

No. 4.—POPULATION of the Counties of Chicoutimi, and Saguenay, from Census of 1881.

Names of Parishes, &c., from Lake St. John downwards.	Number of Families.	Number of Persons.	Total.		Remarks.
			Fami- lies.	Persons	
COUNTY OF CHICOUTIMI.					
Around Lake St. John.					
Township of Normandin.....	53	322	.....	.....	W. end of lake.
St. Félicien.....	114	530	.....	.....	S. side of River Chomou- chouan.
St. Prime.....	167	956	.....	.....	S.W. end of lake.
Notre-Dame-du-Lac, or Pointe Bleue, or Roberval.....	211	1,186	.....	.....	S.W. side of lake.
St. Louis de Chambord or Pointe aux Trembles.....	182	1,067	.....	.....	W. side of lake.
St. Jérôme.....	277	1,803	.....	.....	S.E. end of lake.
St. Gédéon-de-Grand-Mont.....	110	654	.....	.....	E. end of lake.
St. Joseph d'Alma.....	113	710	.....	.....	On island between Grande and Petite Décharges.
			1,227	7,228	
Between Lake St. John and Chicoutimi.					
Hébertville.....	421	2,501	.....	.....	1½ miles above Lake Vert.
St. Syriac de Kaskonia or Kinogami.....	40	262	.....	.....	N. side Lake Kinogami.
St. Dominique, Rivière aux Sables.....	220	1,511	.....	.....	E. side Rivière aux Sables.
Grand Brûlé or Laterrière.....	172	1,320	.....	.....	6 miles below outlet of Lake Kinogami.
			853	5,594	
Along the River Saguenay.					
St. François-Xavier (Parish of Chicou- timi).....	355	2,687	.....	.....	S. side of River Saguenay.
Ste. Anne.....	198	1,260	.....	.....	N. do do
Chicoutimi Town.....	327	1,935	.....	.....	S. do do
St. Fulgence.....	135	845	.....	.....	N. do do
St. Alphonse.....	153	1,071	.....	.....	W. end Baie des Ha! H!
Bagotville (village only).....	88	508	.....	.....	do do
St. Alexis.....	287	1,749	.....	.....	S.W. do do
Anse St. Jean.....	99	653	.....	.....	S. side of River Saguenay.
			1,642	10,708	
Grand Totals.....	.....	.....	3,722	23,530	
COUNTY OF SAGUENAY.					
Tadoussac, at mouth of River Saguenay..	209	1,542	209	1,542	N. side.
(Population of Village comprised in Parish, 59 families; 341 persons.)					

No. 5.—TABLE of Distances from Quebec to Labrador, along North Shore of the St. Lawrence.

From	To	Intermediate Mileage.	Total Mileage from Quebec.	Remarks.
Quebec.....	Beauport.....	3	3	Provincial Highway.
Beauport.....	Montmorency Falls.....	4	7	do
Montmorency Falls.....	Ange Gardien.....	3	10	do
Ange Gardien.....	Château Richer.....	6	16	do
Château Richer.....	St. Anne de Beaupré.....	6	22	do
St. Anne de Beaupré.....	St. Joachim.....	5	27	do
St. Joachim.....	St. Tite des Caps.....	9	36	do
St. Tite des Caps.....	St. Paul's Bay.....	24	60	do
St. Paul's Bay.....	Les Eboulements.....	9	69	do
Les Eboulements.....	St. Irénée.....	9	78	do
St. Irénée.....	Pointe à Pic.....	9	87	do
Pointe à Pic.....	Murray Bay.....	3	90	do
Murray Bay.....	Cap à l'Aigle.....	3	93	do
Cap à l'Aigle.....	St. Fidèle.....	6	99	do
St. Fidèle.....	St. Siméon or Black River.....	10	109	do
St. Siméon.....	Port au Persil.....	8	117	do
Port au Persil.....	Pointe au Bouleau.....	9	126	do
Pointe au Bouleau.....	Anse du Portage.....	5	131	do
Ferry Anse du Portage (across mouth of River Saguenay)...	Anse à l'Eau.....	1	132	do
Anse à l'Eau.....	Tadoussac.....	1	133	do
Tadoussac.....	Les Petites Bergeronnes.....	9	142	do
Les Petites Bergeronnes.....	Escoumains.....	9	151	do
Escoumains.....	Mille-Vaches.....	18	169	do
Mille-Vaches.....	Portneuf.....	9	178	Beach used—2 portages.
Portneuf.....	Sault au Cochon.....	7	185	do
Sault au Cochon.....	Ilets de Jérémie.....	18	203	Track req. through forest.
Ilets de Jérémie.....	Betsiamits (Betsiamits).....	7½	210½	Beach used.
Betsiamits (Betsiamits).....	Pointe aux Outardes.....	12	222½	do
Pointe aux Outardes.....	Manicouagan.....	15	237½	Track req. through forest.
Manicouagan.....	River Godbout.....	27	264½	do do
River Godbout.....	Pointe des Monts.....	12	276½	do do
Pointe des Monts.....	Trinité.....	7	283½	Beach used.
Trinité.....	Iles à Caribou.....	7½	291	do
Iles à Caribou.....	Baie des Kani.....	22	313	do
Baie des Kani.....	Jambon.....	8	321	Track req. through forest.
Jambon.....	River Ste. Marguerite.....	12	333	do do
River Ste. Marguerite.....	Sept Iles.....	12	345	do do
Sept Iles.....	River Moisy.....	19	364	Beach used.
River Moisy.....	River à la Truite.....	8	372	do
River à la Truite.....	Cormoran.....	8	380	do
Cormoran.....	Pigou.....	7	387	do
Pigou.....	River au Bouleau.....	7	394	Fine beach—short portage.
River au Bouleau.....	River Matemek.....	7	401	do do
River Matemek.....	River Chaloupe.....	8	409	do do
River Chaloupe.....	River Sheldrake.....	7	416	do do
River Sheldrake.....	River Tonnerre.....	7	423	do do
River Tonnerre.....	Portage du Loup-Marin.....	8	431	do do
Portage du Loup-Marin.....	River Magpie.....	7	438	do do
River Magpie.....	River St. Jean.....	7	445	do do
River St. Jean.....	Longue Pointe.....	9	454	do do
Longue Pointe.....	Poste de Mingan.....	5	459	do do
Poste de Mingan.....	Pointe aux Esquimaux.....	18	477	do do
Pointe aux Esquimaux.....	Nataskouan.....	64	541	do do
Nataskouan.....	Tshikaska.....	18	559	
Tshikaska.....	Mécatina.....	75	634	
Mécatina.....	Bonne Espérance.....	99	733	
Bonne Espérance.....	Blanc Sablon.....	24	757	Boundary of Labrador, New- foundland and Canada.

No. 6.—POPULATION of various Settlements between Tadoussac and Labrador, on the North Shore of the St. Lawrence.

Names of Places.	Census Returns.		Church Returns.		
	No. of Persons.	No. of Persons.	No. of Families.	No. of Families.	No. of Persons.
	1871.	1881.	1864.	1881.	1881.
Tadoussac.....	765	1,542	Not obtained	131	1,070
Escoumains.....	1,023	520	do	163	1,133
Mille-Vaches.....		1,115	do		
Portneuf.....	1,790		do	109	1,037
Sault au Cochon.....			2	45	290
Ilets de Jérémie.....			1		
*Betsiamits (Betsiamits or Bersimis)	552		110	176	687
Pointe aux Outardes.....			5		
Manicouagan.....	86	120	3	13	100
*River Godbout.....			17	13	59
Pointe des Monts.....	106	243	3		
Trinité.....			3		
Ile aux Œufs.....					
Pointe aux Anglais.....				24	127
Rivière Pentecôte.....					
Cailles Rouges.....					
Ilets à Caribou.....				9	65
*Rivière Ste. Marguerite.....			2		
*Sept Iles.....	191		35	83	385
Rivière Moisy.....	336	241	18	22	114
Rivière à la Truite.....			2		
Cormoran.....			2		
Pigou.....			6		
Rivière au Bouleau.....			2		
River Matamak.....			2		
River Chaloupe.....			2		
River Sheldrake.....			6		
Petit Manitou.....				24	133
Rivière au Tonnerre.....			5	16	90
Rivière du Loup-Marin.....			3		
River Magpie.....			6	42	240
Rivière St. Jean.....			13	27	173
*Longue Pointe.....			14	75	310
*Mingan.....	560		110		
Pointe aux Esquimaux.....	862	1,775	75	181	967
Betchouan, &c.....				35	177
Nataskouan.....	358	488	44	53	286
Nammissipi.....				22	90
Havre à la Croix.....					
Mécatina.....	280	410	Not obtained	48	254
Tête à la Baleine.....					
Baie des Moutons.....					
Tabatière.....				89	425
Anse des Dunes.....					
St. Augustin.....					
Blanc Sablon.....					
Bonne Espérance.....	266	341	Not obtained		
*Romaine.....				68	245
	7,175	6,787	491	1,468	8,457

\* See remarks on next page.

In places of preceding table marked thus (\*) the population is divided as follows:—

Name of Place.	Whites.		Indians.	
	No. of Families.	No. of Persons.	No. of Families.	No. of Persons.
Betsiamits.....	56	207	120	480
River Godbout.....	7	45	6	14
Rivière Ste Marguerite and Sept Iles. ....	18	110	65	275
Longue Pointe and Mingan.....	18	90	57	214
Romaine.. ..	.....	.....	68	245
	99	458	216	1,228

Population of settlements given in Census of 1871 and Census of 1881 include intermediate places.

The returns for 1861 were obtained from Rev. C. Arnaud, Oblat Missionary, and those for 1881 were furnished by the kindness of His Lordship the Bishop of Rimouski for places from Sault au Cochon to Romaine; and by Rev. Father Laberge, Secretary to His Lordship the Bishop of Chicoutimi, for Tadoussac, Escoumains, Mille-Vaches and Portneuf.

G. F. B.

## No. 7.—DISTANCES—Prince Edward Island Railway and Connections.

From	To	Intermediate Mileage.	Total Mileage from Charlotte- town.	Remarks.
Charlottetown .....	County Line.....	32	.....	<i>viâ</i> P. E. I. Railway.
County Line.....	Summerside .....	17	49	do
Summerside .....	Alberton .....	53	102	do
Alberton.....	Tignish.....	14	116	do
Charlottetown.....	Mount Stewart.....	22		
Mount Stewart.....	Georgetown .....	24	46	do
do .....	Sou is.....	39	61	do

WINTER ROUTE *viâ* THE CAPES.

Charlottetown .....	County Line.....	32	.....	<i>viâ</i> P. E. I. Railway.
County Line.....	Cape Traverse.....	16	48	Stage.
Cape Traverse.....	Cape Jourimain.....	12	60	Ice boats.
Cape Jourimain.....	Au Lac.....	45	105	Stage.
Au Lac.....	St. John, N.B.....	131	236	Intercolonial Railway.
do .....	Halifax, N.S.....	145	250	do
do .....	Quebec, P.Q.....	542	647	do

WINTER ROUTE *viâ* GEORGETOWN AND PICTOU.

Charlottetown.....	Georgetown .....	46	.....	P. E. I. Railway.
Georgetown .....	Pictou.....	45	91	Steamer "Northern Light."
Pictou.....	Truro .....	52	143	Intercolonial Ry. (Pictou Branch)
Truro .....	Halifax, N.S.....	62	205	do do
do .....	St. John, N.B.....	214	357	Intercolonial Railway.
do .....	Quebec, P.Q.....	625	768	do

No. 8.—DISTANCES from Quebec to Maritime Provinces *viâ* Intercolonial Railway.

	Intermediate distances.	Distances from Quebec.	
	miles.	miles.	
Quebec to Moncton, N.B.....	500	.....	Intercolonial Railway.
Moncton to Truro, N.S.....	125	625	do
Truro to Halifax, N.S.....	62	687	do
Quebec to Moncton, N.B.....	500	.....	Intercolonial Railway.
Moncton to St. John, N.B.....	89	589	do
Quebec to Moncton, N.B.....	500	.....	Intercolonial Railway.
Moncton to Pointe du Chêne, N.B.....	18	518	do
Pointe du Chêne to Summerside, P.E.I.....	35	553	P.E.I. Navigation Co. Steamers.
Summerside to Charlottetown, P.E.I.....	49	602	do Railway.
Quebec to Truro, N.S.....	625	.....	Intercolonial Railway.
Truro to New Glasgow, N.S.....	43	668	Pictou Branch do
New Glasgow to Pictou, N.S.....	9	677	do do
Pictou, N.S., to Charlottetown, P.E.I.....	50	727	P.E.I. Navigation Co. Steamers.
Quebec to New Glasgow, N.S.....	668	.....	Intercolonial Ry. and Pictou Branch.
New Glasgow to Straits of Canso.....	80	748	Eastern Counties Railway.
Straits of Canso to Sydney, C.B.....	120	868	Steamers <i>viâ</i> St. Peter's Canal.

No. 9.—DISTANCES from Quebec to Maritime Provinces *via* Témiscouata Road and the Railways in the Valley of the River St. John.

	Intermediate distances.	Distances from Quebec.	
	miles.	miles.	
Quebec to Rivière-du-Loup.....	126	.....	Intercolonial Railway.
Rivière-du-Loup to Edmundston, N.B.....	80	206	Témiscouata Road.
Edmundston to Fredericton.....	153	358	New Brunswick Railway.
Fredericton to Fredericton Junction.....	22	380	Fredericton Railway.
Fredericton Junction to St. John.....	46	426	St. John and Maine Railway.
St. John to Halifax, N.S.....	276	702	Intercolonial Railway.
Quebec to Fredericton Junction.....	380	.....	As above.
Fredericton Junction to McAdam Junction.....	40	420	St. John and Maine Railway.
McAdam Junction to St. Andrew's.....	44	464	New Brunswick and Canada Railway.
McAdam Junction to St. Stephen.....	35	455	New Brunswick and Canada Railway.
Quebec to Edmundston ..	206	.....	As above.
Edmundston to Woodstock, N.B.....	120	326	New Brunswick Railway.
Woodstock to McAdam Junction.....	51	377	do and Canada Railway.
McAdam Junction to St. John.....	86	463	St. John and Maine Railway.
McAdam Junction to St. Andrew's.....	44	421	New Brunswick and Canada Railway.
McAdam Junction to St. Stephen.....	35	412	New Brunswick and Canada Railway.
	Intermediate Distances.	Distances from Quebec.	
	miles.	miles.	
St. John, N.B., to Digby, N.S.....	42	.....	} Steamer across Bay of Fundy.
Digby to Annapolis.....	18	60	
Annapolis to Halifax.....	130	190	
Digby to Yarmouth.....	67	127	Western Counties Railway.

No. 10.—DISTANCES from Port Arthur (Prince Arthur's Landing, Lake Superior) to Fort Garry (Winnipeg) by the Dawson Route.

	Statute miles.	
	Inter- mediate.	Total.
Port Arthur to Lake Shebandowan.....	45	45
Lake Shebandowan to North-West Angle.....	31½	3 7
North-West Angle to Fort Garry (Winnipeg).....	95	452

The steamboat voyage from Collingwood to Port Arthur is 532 miles.

The Dawson route has been superseded by the portion of the Canadian Pacific Railway now completed and in operation between Port Arthur (Thunder Bay, Lake Superior) and Winnipeg, *via* Rat Portage and Selkirk, a distance of 433 miles. See next table.

No. 11.—DISTANCES by Canadian Pacific Railway from Port Arthur (Prince Arthur's Landing) to Winnipeg, and thence westward.

Names of Places.	Statute miles.	Names of Places.	Statute miles.
Port Arthur, westward—		Winnipeg, westward— <i>Continued.</i>	
Port Arthur.....	0	Melbourne.....	98·5
Port William.....	6	Carberry.....	165·7
Murillo.....	17½	Sewell.....	114·3
Kaministiquia.....	28	Douglas.....	121·8
Tinmark.....	38	Chater.....	127·5
Buda.....	49	Brandon.....	132·6
Nordland.....	57	Alexander.....	148·7
Linkoping.....	67	Griswold.....	157
Port Savanne.....	77	Oak Lake.....	165·5
Upsala.....	86½	Virden.....	180·2
Carlstadt.....	97	Hargrave.....	188·3
Bridge River.....	103½	Elkhorn.....	196·8
English River.....	118½	Fleming.....	211·1
Martin.....	127	Moosomia.....	219·3
Bonheur.....	137	Red Jacket.....	226·5
Falcon.....	147	Wape la.....	235·4
Ignace.....	157	Burrows.....	243·1
Butler.....	162½	Whitewood.....	249·4
Raleigh.....	177	Percival.....	256·3
Taché.....	187	Broadview.....	263·8
Brûlé.....	197	Oakshela.....	271·3
Wabigon.....	201½	Grenfell.....	279·1
Barclay.....	217	Summerberry.....	286·6
Oxdrift.....	227	Wolseley.....	294·3
Eagle River.....	23½	Sintaluta.....	302·2
Vermilion.....	24½	Indian Head.....	312·2
Gilbert.....	25½	Qu'Appelle.....	323·8
Parrywood.....	161	McLean.....	332·2
Summit.....	272	Balgonie.....	341·3
Hawk Lake.....	282	Pilot Butte.....	348·1
Rossland.....	292	Regina.....	356·6
Rat Portage.....	298½	Grande Coulee.....	366
Keewatin.....	301½	Pense.....	373·4
Ostersund.....	309	Belle Plaine.....	381·2
Kalmer.....	311	Pasqua.....	390·2
Ingolf.....	329	Moose Jaw.....	398·3
Cross Lake.....	335	Boharm.....	406·4
Telford.....	339½	Caron.....	414·4
Rennie.....	349	Mortlach.....	423·4
Darwin.....	359	Parrbegg.....	432·6
Whitemouth.....	369½	Secretan.....	443·0
Shelley.....	378	Chaplin.....	451·9
Monmouth.....	388	Ernfold.....	461·3
Beauséjour.....	397	Morse.....	471·7
Tyndall.....	404	Herbert.....	480·5
Colville Landing.....	407	Rush Lake.....	489·1
Selkirk.....	410	Waldo.....	499·9
Winnipeg.....	435	Swift Current.....	510·8
Winnipeg, westward—		Emerson Section—	
Winnipeg.....	0	Winnipeg.....	0
Winnipeg West.....	7·8	Winnipeg Junction.....	1·5
Rosser.....	15·1	St. Boniface.....	3
Meadows.....	22·2	St. Norbert.....	12
Marquette.....	29	Niverville.....	22·5
Reaburn.....	35·2	Otterburne.....	31
Poplar Point.....	40·5	Dufrost.....	40
Portage la Prairie.....	56	Arnaud.....	48
Burnside.....	63·5	Dominion City.....	56
Bagot.....	71	Emerson.....	66
McGregor.....	79	St. Vincent.....	68
Austin.....	84·6		
Sidney.....	92·8	Total Distances, C. P. Railway	1011·8

NOTE.—For Railways in Manitoba and North-West Territories, see Part IV, Appendix No. 30 of General Report on Public Works 1867 to 1882.

## No. 12.—CANADIAN PACIFIC RAILWAY.—COMPLETED AND IN OPERATION.

*Main Line.*

	Miles.
Eastern Division, Montreal to Sturgeon River.....	389
Western " Thunder Bay to Winnipeg.....	435
" " Winnipeg to Cypress Hills.. ..	606
	<hr/> 1,430 <hr/>

*Branch Lines.*

Eastern Division, Brockville to Carleton Place.....	46
" " Perth Branch.....	12
" " Aylmer Branch.....	9
" " St. Eustache Branch.....	8
" " St. Lin Branch.....	13
" " St. Jérôme Branch.....	14
Western " Stonewall Branch.....	22
" " Pembina Branch.....	65
" " South Western Branch.....	113
	<hr/> 1,732 <hr/>

## No. 13.—TABLE OF DISTANCES.

*Main Line (when completed).*

Montreal to Winnipeg.....	1,434
Winnipeg to Port Moody (British Columbia).....	1,472
	<hr/> 2,906 <hr/>

*Lake Route.*

Montreal to Algoma (Lake Huron).....	539
Algoma to Thunder Bay.....	370
Thunder Bay to Winnipeg.....	435
	<hr/> 1,344 <hr/>

No. 14.—THROUGH DISTANCES, *viâ* CANADIAN PACIFIC RAILWAY (when completed).

	Miles.
Halifax to Winnipeg.....	2,285
Portland to Winnipeg.....	1,731
Boston to Winnipeg.....	1,839
New York to Winnipeg.....	1,817
Quebec to Winnipeg.....	1,591
Montreal to Winnipeg.....	1,434

## No. 15.—DISTANCES BY OTHER ROUTES THROUGH CHICAGO.

Halifax to Winnipeg.....	2,561
Portland to Winnipeg.....	2,000
Boston to Winnipeg.....	2,028
New York to Winnipeg.....	1,827
Philadelphia to Winnipeg.....	1,731
Montreal to Winnipeg.....	1,703
Quebec to Winnipeg.....	1,875

## No. 16.—TABLE OF THROUGH DISTANCES.

*Viâ Chicago (All Rail).*

	Miles.
Halifax to Winnipeg.....	2,561
New York to Winnipeg.....	1,827
Toronto to Winnipeg.....	1,370
Montreal to Winnipeg .....	1,703
Quebec to Winnipeg.....	1,875
Montreal to Winnipeg, <i>viâ</i> the Canadian Pacific Route, when completed .....	1,434
Or from Quebec.....	1,591
Montreal to Winnipeg, <i>viâ</i> the Canadian Pacific Railway and Lake Route.....	1,344
(Of which 370 miles are by water).	
Chicago to Winnipeg.....	866
St. Paul to Winnipeg.....	410

## No. 17.—COMPARATIVE TABLE OF DISTANCES.

From Montreal to Port Moody (Pacific terminus).....	2,906
From New York to Port Moody, <i>viâ</i> Canadian Pacific Railway and Montreal.....	3,289
From New York to Port Moody, <i>viâ</i> Canadian Pacific Railway and Brockville.....	3,164
From New York to San Francisco, <i>viâ</i> Central and Union Pacific Railways and shortest connecting lines in the United States.....	3,331
From Liverpool to Montreal.....	2,790
From Liverpool to New York.....	3,040
From Liverpool to Port Moody, <i>viâ</i> Canadian Pacific Railway and Montreal.....	5,696
From Liverpool to San Francisco, <i>viâ</i> all United States routes .....	6,830
From Liverpool to Yokohama (Japan), <i>viâ</i> Montreal and Canadian Pacific Railway.....	11,019
From Liverpool to Yokohama (Japan), <i>viâ</i> New York and San Francisco.....	12,038

The above distances, *viâ* Canadian Pacific Railway, are by the Kicking Horse Pass, a route lately discovered by the Company's engineers, which shortens the line over ninety miles, and gives it the easiest gradients through the Rockies of any of the Pacific railroads.

## No. 18.—GOVERNMENT TELEGRAPH LINES.

## CONSTRUCTED.

Names of Stations.		Lengths—Distances in miles.			Established.
From	To	Inter- mediate.	Pro- gressive	Complete lines.	
<i>Newfoundland.</i>		miles.	miles.	miles.	
Port aux Basques.....	Cape Ray Lighthouse.....	14	.....	14	
<i>Cape Breton Section.</i>					
Meat Cove.....	Aspee Bay.....	10½	.....	.....	Nov. 7, 1880; Aug. 1, 1882.
Aspee Bay.....	O'Neil's Harbour (House ½ way)	15	25½	.....	
O'Neil's Harbour.....	Ingonish North Bay.....	9	34½	.....	April 1, 1882.
Ingonish North Bay.....	Ingonish Harbour.....	10½	45	.....	
Ingonish Harbour.....	McLennan's.....	23	68	.....	
McLennan's.....	Ste. Anne's (South Bay).....	19	87	.....	
Ste. Anne's.....	Baddeck (Loop-line).....	13	100	.....	Jan. 1, 1882.
Baddeck.....	Englishtown.....	6	106	.....	July 19, 1882.
Englishtown.....	Kelly's Cove.....	2	108	.....	
Kelly's Cove.....	Big Bras d'Or (of this ½ mile cable).....	6	114	.....	
Big Bras d'Or.....	North Sydney.....	12½	126½	.....	Nov. 7, 1880.
	Land lines..... 126				
	Cable..... 6½			126½	
<i>Magdalen Islands.</i>					
Amherst.....	Amherst Lighthouse.....	9	.....	.....	June 10, 1881.
Amherst Lighthouse.....	Etang du Nord Village.....	15	24	.....	Dec 1, 1881.
Etang du Nord Village.....	do Lighthouse.....	1	25	.....	do
Etang du Nord Lighthouse.....	House Harbour (of this 1½ mile cable).....	8	33	.....	do
House Harbour.....	Wolfe Island.....	28½	61½	.....	Sept. 25, 1881.
Wolfe Island.....	Grosse Ile.....	11	72½	.....	Aug. 17, 1880.
Grosse Ile.....	Grand Entry.....	11	83½	.....	Feb 18, 1882.
do.....	Bird Rock (all cable).....	18½	101½	.....	Aug 20, 1881.
do.....	Meat Cove do.....	55	156½	.....	Nov. 7, 1880.
	Land lines..... 83½				
	Cable..... 73½			156½	
<i>Low Point, C B., Nova Scotia</i>					
Lingan.....	Low Point.....	5	.....	5	Aug. 1, 1881.
<i>Nova Scotia Section.</i>					
Dartmouth.....	.....	0	.....	.....	
Musquodoboit.....	.....	28½	28½	.....	
Ship Harbour, via Clam Cove.....	.....	23½	52	.....	
Tangier.....	.....	20½	72½	.....	
Sheet Harbour.....	.....	18	90½	.....	
Beaver do.....	.....	10	100½	.....	
Liscomb.....	.....	36	136	.....	
Sherbrooke.....	.....	11½	148	.....	
Isaac's Harbour.....	.....	26	184	.....	
Manthorn's Cove.....	.....	3	187	.....	
Torbay.....	.....	10	197	.....	
Whitehaven Loop.....	.....	11	208	.....	
				208	

No. 18.—GOVERNMENT TELEGRAPH LINES—*Continued.*CONSTRUCTED—*Continued.*

Names of Stations.		Lengths—Distances in miles.			Established.
From	To	Inter- mediate.	Pro- gressive	Complete lines.	
BAY OF FUNDY.		miles.	miles.	miles.	
<i>Campo Bello Section, N.B.</i>					
East Port, Maine .....	Welchpool (Cable 1½ mile)...	2¾	.....	.....	
Welchpool .....	Cable Hut (Liberty Cove)...	7½	.....	.....	
<i>Grand Manan Section.</i>					
Liberty Cove .....	Cable Hut (Long Eddy) cable	7½	.....	.....	
Long Eddy .....	Flagg's Cove .....	3	10½	.....	
Flagg's Cove .....	Woodward's Cove .....	6	16½	.....	
Woodward's Cove .....	Grand Harbour .....	2	18½	.....	
Grand Harbour .....	Seal Cove .....	4¾	22¾	.....	
Seal Cove .....	Southern Head .....	5¾	28¾	.....	
	Land .....	29		28¾	
	Cables .....	9½			
<i>Anticosti.</i>		38½			
Gaspé Basin .....	L'Anse à Fougère .....	28	.....	.....	Oct 16, 1881.
L'Anse à Fougère .....	South West Point (all cable) across south channel of St. Lawrence .....	44½	72½	72½	Aug. 11, 1881 ; July 20, 1881
Fox Bay .....	Heath Point .....	23	.....	.....	July 27, 1881.
Heath Point .....	South Point .....	32½	55½	.....	July 7, 1881.
South Point .....	Shallop Creek .....	17½	73	.....	Oct 19, 1881.
Shallop Creek .....	Salt Lake .....	52½	125½	.....	Oct. 18, 1880.
Salt Lake .....	South West Point .....	15	140½	.....	
South West Point .....	Jupiter River .....	7	147½	.....	
Jupiter River .....	Otter River .....	17½	165	.....	
Otter River .....	Bec Scie River .....	22	187	.....	
Bec Scie River .....	Cape Eagle (Ellis Bay) .....	10	197	.....	
Cape Eagle .....	West Point .....	14	211	.....	Aug 1, 1881.
West Point .....	English Bay .....	3	214	.....	July 1, 1882.
	Land Line .....	242		214	
	Cable .....	44½		286½	
<i>South Shore St. Lawrence.</i>					
Grand Métis .....	Gaspé Basin .....	206	.....	.....	
(Subsidized by Government —Great North-Western Telegraph Co.) .....					

No. 18.—GOVERNMENT TELEGRAPH LINES.—*Continued.*

## CONSTRUCTED AND PROJECTED.

Names of Stations.		Lengths—Distances in Statute Miles.			Established.
From	To	Inter- mediate.	Pro- gressive	Complete Lines.	
<i>North Shore, St. Lawrence.</i>					
Murray Bay.....	St. Fidèle.....	10	10	} 23rd July, 1881	
St. Fidèle.....	St. Siméon.....	11	21		
St. Siméon.....	Anse du Portage.....	23	44		
Anse du Portage.....	Tadoussac (cable 1½ miles across mouth of Saguenay).....			} 7th Nov., 1881.	
Tadoussac.....	Bergeronnes.....	2	46		
Bergeronnes.....	Escoumains.....	15	61		
Escoumains.....	Sault au Mouton.....	12	73	} 7th Nov., 1881.	
Sault au Mouton.....	Portneuf village.....	16	89		
Portneuf village.....	do lighthouse.....	11½	100½		
do lighthouse.....	Sault au Cochon.....	9	109½	} October, 1882.	
Sault au Cochon.....	Betsiamits.....	7	116½		
Betsiamits.....	Pointe aux Outardes.....	31	147½		
Pointe aux Outardes.....	Manicouagan.....	12	159½	} Projected.	
Manicouagan.....	River Godbout.....	15	174½		
River Godbout.....	Pointe des Monts.....	27	201½		
Pointe des Monts.....	Sept Iles.....	12	213½		
Sept Iles.....	River Moisy.....	68	281½		
River Moisy.....	River Chaloupe.....	19	300½		
River Chaloupe.....	Poste de Mingan.....	45	345½		
Poste de Mingan.....	Pointe aux Esquimaux.....	50	395½		
Pointe aux Esquimaux.....	Nataskouan.....	18	413½		
Nataskouan.....	Tshikaska.....	64	477½		
Tshikaska.....	Wapitagum.....	18	495½		
Wapitagum.....	Mécatina.....	42	537½		
Mécatina.....	Secatica.....	33	570½		
Secatica.....	Bonne Espérance.....	50	620½		
Bonne Espérance.....	Blanc Sablon.....	49	669½		
		24	693½		
	miles.				
	Land lines.....			692½	
	Cable.....			1½	
				693½	

No. 18.—GOVERNMENT TELEGRAPH LINES—*Continued.*

## CONSTRUCTED.

Names of Stations.		Lengths—Distances in Statute Miles.			Established.
From	To	Inter- mediate	Pro- gressive	Complete Lines.	
<i>Chicoutimi.</i>					
Baie St. Paul. ....	St. Urbain. ....	9	.....	.....	1st Sept., 1881.
St. Urbain.....	Petit Lac Ha! Ha!.....	37	46	.....	
Petit Lac Ha! Ha!.....	St. Alexis.....	31½	77½	.....	
St. Alexis.....	St. Alphonse-de-Bagotville.....	3	80½	.....	
St. Alphonse-de-Bagotville.	Chicoutimi.....	11½	92	.....	
	Land line.....			92	
<i>North-West Lines.</i>					
Port Arthur.....	Fort William.....	6	.....	.....	1878.
Fort William.....	Murillo.....	11½	17½	.....	
Murillo.....	Buda.....	31½	49	.....	
Buda.....	Upsala.....	37½	86	.....	
Upsala.....	Bridge River.....	17	103½	.....	
Bridge River.....	English River.....	15	118½	.....	
English River.....	Butler.....	44	162½	.....	
Butler.....	Wabigon.....	39	201½	.....	
Wabigon.....	Eagle River.....	31	232½	.....	
Eagle River.....	Rat Portage.....	66	298½	.....	
Rat Portage.....	Telford.....	41	339½	.....	
Telford.....	Whitemouth.....	30	369½	.....	
Whitemouth.....	Selkirk.....	40½	410	.....	
Selkirk.....	Winnipeg.....	23	433	.....	
				433	
Qu'Appelle Ry. Station.....	Fort Qu'Appelle.....	17	.....	.....	
Fort Qu'Appelle.....	Touchwood.....	46	63	.....	
Touchwood.....	Humboldt.....	78	141	.....	
Humboldt.....	Saskatchewan.....	55	196	.....	
Saskatchewan.....	Battleford.....	85	281	.....	
Battleford.....	Meridian.....	84	365	.....	
Meridian.....	Victoria Trail.....	80	445	.....	
Victoria Trail.....	Hay Lake.....	56	501	.....	
Hay Lake.....	Fort Edmonton.....	36	537	.....	
				537	
	Total land line.....			970	

NOTE.—An intermediate line (323·8 miles), owned and operated by the C. P. Railway, connects Winnipeg with Qu'Appelle Railway Station.

No. 18.—GOVERNMENT TELEGRAPH LINES—*Continued.*

SYSTEM of Telegraph Lines and Cables now maintained by the Dominion Government,  
676½ miles, or 79½ miles less than by the Route of 1880.

## CONSTRUCTED.

Localities.		Constructed	Miles.
From	To		
BRITISH COLUMBIA.			
Vancouver Island Land Lines—			
Victoria.....	Departure Bay.....	1878	74½
Nanaimo.....	Valdes.....	1881	15
Straits of Georgia Cables—			
Saanich Arm Crossing.....		1878 & 1881	2
Gabriola Island do.....		1881	1
Valdes Island.....	Point Gray.....	1881	20
Mainland British Columbia Land Lines—			
Point Gray.....	Granville.....	1881	15
Granville.....	New Westminster.....	1881	11½
New Westminster.....	Matsqui (including cables).....	1864 & 1881	35½
Matsqui.....	Cache Creek do.....	1864 & 1878	181
Cache Creek.....	Barkerville, Cariboo.....	1865 & 1878	272½
do.....	Kamloops.....	1878	48
Fraser River Crossings, 2 cables ½ mile each.....		1881	½
Total miles.....			676½

Plus 44 miles of an additional wire between New Westminster and the United States boundary line, 8 miles from Matsqui.

Land line.....	653
Cables.....	23½
	—676½

MEMO.—The land line and San Juan Island cable route of 1864 was finally abandoned at the close of 1880, in favor of the Valdes to Point Gray route.

New Westminster is now the established transfer station of the Western Union Telegraph Company, but for checking purposes is designated "Samas."

An alternative cable connection *via* Victoria, Vancouver's Island and Point Angeles, Washington Territory, will probably be made during 1883.

No. 18.—SUMMARY showing proportion of Land and Cable Telegraph Lines, owned, subsidized or operated by Government in the several Provinces.

	Distances in miles.				Grand Total.
	Intermediate.		Progrsive.		
	Land.	Cables.	Land	Cables.	
Newfoundland—Subsidized line— Port aux Basques to Cape Ray.....	14	.....	14	.....	14
Nova Scotia— Sydney to Meat Cove.....	126	$\frac{1}{2}$	.....	.....	.....
Dartmouth to Torbay (subsidized).....	208	.....	334	$\frac{1}{2}$	.....
Low Point to Lingan.....	5	.....	339	$\frac{1}{2}$	339 $\frac{1}{2}$
New Brunswick— Bay of Fundy lines .....	29	9 $\frac{1}{8}$	29	9 $\frac{1}{8}$	38 $\frac{1}{8}$
Quebec— South Shore (subsidized) from Grand Metis to Gaspé } Basin.....	206	.....	.....	.....	.....
Great North-Western Telegraph Company's Offices. }	.....	.....	.....	.....	.....
Magdalen Islands .....	83 $\frac{3}{8}$	7 $\frac{3}{8}$	289 $\frac{3}{8}$	.....	.....
Anticosti Island .....	242	44 $\frac{1}{4}$	531 $\frac{3}{8}$	117 $\frac{3}{8}$	.....
North Shore line.....	146 $\frac{1}{4}$	1 $\frac{1}{4}$	677 $\frac{3}{8}$	118 $\frac{3}{8}$	.....
Chicoutimi .....	93	.....	769 $\frac{3}{8}$	.....	888 $\frac{1}{2}$
North-West.....	970	.....	970	.....	970
British Columbia. ....	653	23 $\frac{1}{2}$	653	23 $\frac{1}{2}$	676 $\frac{1}{2}$
	2,774 $\frac{5}{8}$	152	.....	.....	2,926 $\frac{5}{8}$

No. 19.—AREA and Population of the Globe. Compiled, as far as possible, from the last Official Census of each country; and where no Census has been made the figures are taken from the most reliable estimates.

Continent.	Country.	Years of Census.	Area, English Square Miles.	Population.
Europe .....	Austro-Hungary .....	1880	240,940	37,741,434
	Belgium .....	"	11,373	5,519,844
	British Isles and Gibraltar, Malta, &c. ....	1881	121,237	35,422,407
	Bulgaria .....		27,538	2,000,000
	Denmark and Iceland .....	1880	55,260	2,096,410
	France .....	1881	204,096	37,672,048
	German Empire .....	1880	208,744	45,194,177
	Greece .....	1879	19,353	1,979,775
	Holland .....	1880	13,679	4,270,098
	Italy .....	1881	114,408	28,459,451
	Montenegro .....		1,710	245,380
	Portugal .....	1879	35,812	4,745,124
	Roumania .....		49,262	5,376,000
	Russia, in Europe .....	1882	2,074,686	84,851,886
	Servia .....	1879	18,767	1,670,000
	Spain .....	"	195,775	16,623,389
	Sweden and Norway .....	1881	293,849	6,391,398
	Switzerland .....	1880	15,991	2,846,102
	Turkey, in Europe .....		80,000	5,275,000
	Total .....		3,782,195	328,626,556
Asia .....	Afghanistan .....		278,600	2,500,000
	Arabia (Ind.) .....		1,500,000	3,265,000
	Beluchistan .....		140,000	1,000,000
	British India .....	1881	1,473,687	253,382,186
	Chinese Empire .....		4,539,750	434,580,000
	East India Islands .....		786,500	34,500,000
	Farther India .....		873,151	36,504,250
	Independent Turkistan .....		194,345	3,000,000
	Japan .....		147,629	35,925,313
	Persia .....		636,000	5,000,000
	Portuguese Settlements .....		7,134	877,500
	Russia, in Asia .....	1882	6,250,707	15,186,456
	Turkey do .....		729,981	17,536,465
	Total .....		17,557,284	843,257,170
Africa .....	Abyssinia .....		158,000	3,000,000
	Algeria .....		123,000	2,370,000
	British South Africa .....		546,230	1,890,500
	Central Africa, including Somah & Gallas .....		4,000,000	50,000,000
	Egypt .....		870,000	17,400,000
	Gold Coast, Sierra Leone, &c. ....	1881	17,609	689,968
	Liberia .....		50,000	1,500,000
	Lower Guinea .....		280,000	2,000,000
	Madagascar .....		228,570	3,000,000
	Morocco .....		260,000	6,000,000
	Orange Free State .....		42,470	50,000
	Portuguese Settlements .....		697,365	2,410,000
	Sahara .....		2,500,000	5,000,000
	Senegambia .....		147,000	4,000,000
	Soudan .....		1,250,000	30,000,000
	Transvaal .....		114,360	700,000
	Tripoli .....		344,400	1,200,000
	Tunis .....		45,716	1,500,000
	Zanzibar .....		100,000	5,000,000
	Total .....		11,774,720	138,190,466

No. 19.—AREA and Population of the Globe, &c.—*Continued.*

Continent.	Country.	Years of Census.	Area, English Square Miles.	Population.
America .....	Dominion of Canada.....	1881	3,470,392	4,324,810
	Greenland.....		750,000	10,000
	Mexico.....		741,820	9,650,000
	Newfoundland.....	1874	40,200	161,389
	United States.....	1880	3,603,884	50,152,866
			8,606,296	64,303,065
	Central America .....		164,900	2,600,000
	West Indies.....		150,000	4,500,000
	Argentine Republic.....	1880	1,357,896	2,540,000
	Bolivia.....		500,870	2,325,000
	Brazil.....		3,288,000	10,200,000
	Chili.....	1882	182,790	2,234,000
	Colombia .....		320,750	3,100,000
	Ecuador.....		248,380	1,066,000
	Guiana.....	1881	178,370	341,800
	Patagonia.....		375,000	200,000
	Paraguay.....		56,700	293,844
	Peru.....		503,380	3,374,000
	Uruguay.....	1880	69,800	450,000
	Venezuela.....	1881	402,276	2,075,245
	Total.....		16,396,408	99,602,954
Australasia.....	Australia.....	1881	2,916,555	2,235,734
	New Zealand.....	"	106,260	489,993
	Tasmania.....	"	26,215	115,705
	Total.....		3,079,030	2,841,432
Polynesia.....			350,000	30,000,000

## RECAPITULATION.

Europe	about .....	3,800,080	330,000,000
Asia	do .....	17,600,000	850,000,000
Africa	do .....	11,800,000	140,000,000
America	do .....	16,500,000	100,000,000
Australasia	do .....	3,100,000	3,000,000
Polynesia	do .....	350,000	30,000,000
Grand total.....		53,150,000	1,453,000,000

No. 20.—TABLE of the British Possessions throughout the World, with their Population and Area in English Square Miles, in 1881.

	Area.	Population.
	Eng. sq. miles.	
<b>In Europe—</b>		
British Islands.....	121,115	36,100,000
Gibraltar.....		23,991
Heligoland.....		2,001
Malta and Gozo.....	117	149,782
<b>In Asia—</b>		
British India (including Dependent States).....	1,558,254	254,000,000
Ceylon.....	24,702	2,758,166
Straits Settlements (Singapore, etc.).....	1,440	350,000
Aden (including Perim Island).....	70	35,163
Hong Kong.....	32	160,402
Labuan Island.....	30	6,000
<b>In Africa—</b>		
Gambia River.....	21	14,150
Sierra Leone.....	468	60,546
Gold Coast Colony.....	16,620	520,000
Lagos.....	75,270	
Cape Colony.....	240,110	1,249,824
Natal.....	18,750	361,537
Mauritius and dependencies (Rodriguez, etc.).....	704	359,419
Ascension Island.....	35	
St. Helena Island.....	47	5,059
<b>In North America—</b>		
Dominion of Canada.....	3,470,392	4,324,810
Newfoundland.....	40,200	161,389
British Honduras or Belise.....	6,500	27,452
Jamaica.....	4,256	580,804
Bahama Islands.....	5,794	43,521
Trinidad and other West India Islands.....	3,287	989,059
Bermuda Islands.....	41	11,434
<b>In South America—</b>		
British Guiana.....	85,000	252,186
Falkland Islands.....	4,740	1,543
<b>In Oceania—</b>		
New South Wales, Australia.....	310,937	750,000
Victoria do.....	87,884	862,346
Queensland do.....	668,225	213,525
South Australia.....	903,690	279,865
West Australia.....	975,824	30,200
Tasmania.....	26,214	115,705
New Zealand.....	106,260	489,993
<b>Total of British Empire throughout the world.....</b>	<b>8,757,029</b>	<b>305,292,872</b>

## No. 21.—TABLE of Largest Empires.

	Area in square miles.	Population at last census.	Population per square mile.
British Empire .....	8,757,029	305,292,872	34.7
Russian Empire .....	8,325,293	100,038,342	12.0
Chinese Empire .....	4,540,000	250,000,000	55.0
United States .....	3,002,852	52,152,866	17.3
Brazilian Empire .....	3,288,000	10,200,000	3.1
French Republic .....	204,096	37,672,048	184.5
German Empire.....	208,744	45,194,177	216.5
Spain (including Colonies).....	320,975	24,914,000	77.6
Italy.....	114,408	28,459,451	248.7

## No. 22.—POPULATION OF THE GLOBE BY RACES.

TAKEN FROM KEITH JOHNSTON'S GEOGRAPHY, LONDON, 1880.

Indo-Germanic, or Aryan.....	550,000,000
Mongolian, or Turanian.....	635,000,000
Semitic and Hamitic.....	65,000,000
Negro and Bantu.....	150,000,000
Hottentot and Bushmen.....	150,000
Malay and Polynesian.....	35,000,000
American Indian.....	15,000,000
Total.....	1,450,150,000

## No. 23.—POPULATION OF THE GLOBE BY RELIGIONS.

TAKEN FROM KEITH JOHNSTON'S GEOGRAPHY, LONDON, 1880.

Christians .....	375,000,000
Jews .....	7,000,000
Mohammedans .....	170,000,000
Buddists.....	503,000,000
Hindus .....	177,000,000
Heathen and Fetish Worshipers.....	170,000,000
Various and Unknown.....	48,000,000
Total.....	1,450,000,000



APPENDIX No. 25.

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## COMPARATIVE STATEMENT

OF THE

## TRAFFIC ON THE RAILWAYS AND CANALS

IN THE

## DOMINION OF CANADA,

WITH THE TRAFFIC ON THE RAILWAYS AND CANALS IN THE  
STATE OF NEW YORK, ETC.,

From 1868 to 1881 (inclusive.)

By W. J. PATTERSON, Secretary of the Board of Trade, Montreal.

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## MEMO. OF TABLES ATTACHED.

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- No. 1. Statement showing traffic on the Welland Canal from 1868 to 1882.
  2. Statement showing traffic on the St. Lawrence Canals from 1868 to 1882.
  3. Statement showing traffic on all the canals in the Dominion of Canada from 1872 to 1882.
  4. Comparative statement of receipts of grain and flour received at Montreal *via* Grand Trunk Railway, and the Lachine Canal, from 1868 to 1882.
  5. Statement of traffic on railways in the Dominion of Canada from 1875 to 1882 (no returns prior to 1875).
  6. Statement of traffic on the New York State canals from 1868 to 1882.
  7. Statement of wheat and flour shipped from Buffalo and Oswego, indicating the amount of traffic attracted to Oswego through the Welland Canal, from 1868 to 1882.
  8. Traffic on the New York Canals compared with the traffic on the four competing railway lines.
  9. Movement of breadstuffs to the seaboard; comparison between canal and rail movement; the best comparative statement that can be made, taken in conjunction with No. 8.
  10. Receipts of grain and flour at New York during seven months of canal navigation, by rail and canal.
  11. Traffic movements on thirteen leading lines in the United States from 1873 to 1880.
  12. Number of miles of railroad in operation in the United States, 1865 to 1879.

## APPENDIX No. 25.

## COMPARATIVE STATEMENT OF THE TRAFFIC ON RAILWAYS AND CANALS.

No. 35,872.

OFFICE, BOARD OF TRADE,  
MONTREAL. 3rd July, 1883.

DEAR SIR,—Referring to your telegrams of 20th, 22nd and 26th ult., asking for a statement of freight and passenger traffic on railway lines which compete with canals in Canada and in the United States—extending backward for fifteen years—I have now the honor to transmit to you the result of the effort made to comply with your request. The information available from a number of sources has been tabulated in such a way as to convey the desired information, I believe, without comment; but if it shall seem necessary to you to make any inquiry as to particular points, or lines of figures, it will afford pleasure to reply promptly.

Let me say that the communication is the outcome of much investigation—numerous authorities having been consulted—and I earnestly hope it will be satisfactory.

I have the honour to be, Sir,  
Your obedient servant,

WM. J. PATTERSON,  
*Secretary.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works,  
Ottawa.

## CANALS IN THE DOMINION OF CANADA.

No. 1.—STATEMENT showing traffic on the Welland Canal for Years 1868 to 1882.

Year ending 20th June.	TONNAGE OF FREIGHT.			Number of Passengers.	Tonnage of Craft—Up and Down.
	Up.	Down.	Total.		
1868.....	285,415	850,220	1,135,635	7,536	1,240,366
1869.....	375,054	856,849	1,231,903	6,611	1,267,451
1870.....	328,045	946,773	1,274,818	9,934	1,357,117
1871.....	395,759	1,082,363	1,478,122	8,147	1,554,118
1872.....	346,530	973,466	1,319,996	9,466	1,377,815
1873.....	437,354	954,338	1,391,692	7,629	1,397,388
1874.....	449,104	1,090,977	1,540,081	6,919	1,572,113
1875.....	348,053	784,800	1,142,853	5,653	1,177,020
1876.....	379,481	742,321	1,121,802	5,735	1,077,804
1877.....	305,643	815,206	1,120,849	13,293	1,216,659
1878.....	301,536	790,362	1,091,898	10,065	1,240,176
1879.....	246,449	672,475	918,924	5,353	998,247
1880.....	221,610	674,512	896,122	5,395	943,686
1881.....	199,222	599,587	798,809	4,950	863,096
1882.....	220,076	424,651	644,727	1,741	679,040

No. 2.—STATEMENT showing Traffic on the St. Lawrence Canals for Years 1868 to 1882.

1863.....	172,159	759,907	932,066	47,346	1,176,466
1869.....	169,180	794,112	964,002	46,754	1,174,650
1870.....	178,906	1,036,161	1,215,067	50,671	1,354,102
1871.....	193,976	952,298	1,146,274	48,568	1,339,000
1872.....	208,020	732,625	940,645	38,942	1,186,766
1873.....	219,029	790,233	1,009,262	55,473	1,267,047
1874.....	206,287	804,110	1,010,397	32,965	1,377,989
1875.....	221,478	736,293	957,771	35,129	1,302,634
1876.....	252,788	664,765	917,553	40,381	1,310,242
1877.....	.....	.....	.....	61,367	1,341,166
1878.....	199,525	666,358	865,883	59,439	1,792,267
1879.....	182,806	636,110	818,916	68,648	1,729,616
1880.....	241,154	749,013	990,167	71,716	1,920,312
1881.....	247,318	804,892	1,052,210	77,754	1,997,432
1882.....	281,537	620,840	902,377	75,221	1,936,896

No. 3.—STATEMENT showing Total Traffic on ALL the Canals in the Dominion for the Years 1872 to 1882.

Year ending 30th June.	Tons Freight.	Number of Passengers.	Tonnage of Vessels.	Year ending 30th June	Tons Freight.	Number of Passengers.	Tonnage of Vessels.
1872.....	3,030,233	90,644	3,721,364	1878.....	2,478,257	144,370	4,310,862
1873.....	3,309,299	100,374	3,933,798	1879.....	2,206,679	170,401	3,921,095
1874.....	3,420,700	95,895	4,099,874	1880.....	2,370,868	129,137	4,143,647
1875.....	2,931,479	99,206	3,570,205	1881.....	2,556,709	122,507	4,283,817
1876.....	2,647,602	100,227	3,381,021	1882.....	2,542,843	110,787	4,063,247
1877.....	2,734,153	146,375	3,576,698				

N.B.—Previous to 1872, in consequence of *through* let-passes not being given, a let-pass was granted for each Canal, and consequently the total of all the Canals would include many items repeated four times.

No. 4.—RECEIPTS of Grain and Flour at Montreal per Grand Trunk Railway and Lachine Canal.

Year.	Lachine Canal.	Grand Trunk Railway.
	Bushels.	Bushels.
1868.....	5,544,827	3,026,083
1869.....	9,753,754	3,350,995
1870.....	9,954,006	2,774,962
1871.....	12,520,443	3,759,706
1872.....	13,883,361	3,825,872
1873.....	15,573,816	4,326,730
1874.....	12,820,967	4,855,387
1875.....	11,654,284	5,761,106
1876.....	12,720,169	6,347,616
1877.....	13,650,804	5,083,883
1878.....	14,259,999	7,627,891
1879.....	17,160,750	5,813,330
1880.....	19,280,017	5,524,651
1881.....	12,431,250	7,588,840
1882.....	10,005,532	6,289,061

## RAILWAYS IN THE DOMINION OF CANADA.

No. 5.—STATEMENT showing the Mileage of Road, Train Mileage, number of Passengers and tons of Freight carried, and Annual Receipts and Expenditure during the past Eight Years.

Year ending 30th June—	Mileage of Road.	Train Mileage.				Number of Passengers.	Tons of Freight.	Earnings	Operating Expenses.
		Passenger.	Freight.	Mixed	Total.				
								\$	\$
1875...	4,826½	5,206,353	10,910,181	1,563,644	17,680,168	5,190,416	5,670,836	19,470,539	15,775,532
1876...	5,157½	5,837,461	9,616,148	2,650,019	18,103,628	5,544,814	6,331,757	19,358,084	15,802,721
1877...	5,574½				19,450,813	6,073,233	6,859,796	18,742,653	15,290,091
1878...	6,143½	6,225,327	9,981,786	3,462,334	19,669,447	6,443,924	7,883,472	20,520,078	16,100,102
1879...	6,484½	6,987,919	6,510,636	7,068,450	20,731,689	6,523,816	8,348,810	19,925,066	16,188,102
1880...	6,891½	7,312,168	10,775,380	4,157,292	22,427,449	6,462,948	9,938,858	23,561,447	16,840,705
1881...	7,260	8,298,957	15,163,634	2,099,487	27,301,366	6,943,671	12,065,323	27,987,509	20,121,418
1882...	7,530	8,802,479	16,668,535	2,375,397	27,846,411	9,352,335	13,575,787	29,027,790	22,390,709

## CANALS IN THE STATE OF NEW YORK.

No. 6.—STATEMENT of Tons of Property going from tide water; the tons arriving at tide water from Western States and from New York State; the total tons arriving at tide water; the tons of the Internal Trade of N.Y. State, and tons of the total movement on all the Canals, from 1868 to 1882.

Year.	Going from Tide Water.	Arriving at Tide Water.				Total Arriving at Tide Water.	Internal Movement of New York State.	Total Movement.
		By way of Erie Canal.		By way of Champlain Canal.				
		From Western States.	From New York State.	From Vermont and Canada.	From New York State.			
1868 .....	1,067,020	2,215,222	163,350	193,474	668,760	3,240,806	2,134,399	6,442,225
1869 .....	772,201	2,028,568	229,121	203,876	634,577	3,096,142	1,990,737	5,859,080
1870 .....	940,429	2,048,947	241,751	244,617	620,987	3,156,302	2,077,038	6,173,769
1871 .....	801,538	2,473,832	175,045	212,054	634,870	3,495,801	2,170,549	6,467,888
1872 .....	926,228	2,456,022	214,383	261,058	716,481	3,647,944	2,099,198	6,673,370
1873 .....	795,117	2,539,455	225,900	27,895	763,399	3,376,649	2,194,016	6,364,782
1874 .....	753,981	2,200,364	269,933	193,523	559,292	3,223,112	1,827,495	5,804,588
1875 .....	701,253	1,664,656	250,886	135,115	558,720	2,608,777	1,549,828	4,859,858
1876 .....	745,797	1,402,768	342,552	128,223	552,639	2,426,182	1,000,150	4,172,129
1877 .....	978,991	2,010,081	287,927	156,156	532,654	2,986,812	990,160	4,955,963
1878 .....	783,150	2,450,512	331,278	151,081	654,230	3,637,101	751,069	5,171,320
1879 .....	992,434	2,196,177	349,825	151,913	588,261	3,286,176	1,083,762	5,362,372
1880 .....	1,264,179	2,801,282	425,076	224,437	616,607	4,067,404	1,126,075	6,457,656
1881 .....	1,056,196	1,804,120	389,182	212,179	660,358	3,065,839	1,057,157	5,179,192
1882 .....	1,038,003	1,824,129	278,311	213,422	752,290	3,068,152	1,361,268	5,467,423

No. 7.—STATEMENT showing Tons of Wheat and Flour shipped at Buffalo (and Tonawanda) and Oswego, and total tons arrived at Tide Water for Years 1868 to 1882.

Years.	Buffalo (and Tonawanda).	Oswego.	Total.	Total Tons Arrived at Tide Water.
1868.....	313,845	105,795	419,640	390,852
1869.....	496,524	148,721	645,245	636,670
1870.....	510,416	127,172	637,588	575,684
1871.....	576,456	133,216	709,672	678,450
1872.....	330,652	62,640	393,292	356,917
1873.....	738,644	57,283	795,927	682,827
1874.....	650,223	108,289	758,512	726,702
1875.....	701,174	34,418	735,592	686,709
1876.....	377,548	22,867	400,415	357,683
1877.....	400,126	29,810	429,936	385,072
1878.....	776,953	25,565	802,518	811,908
1879.....	893,643	26,474	920,117	914,619
1880.....	900,346	18,417	918,763	883,247
1881.....	388,096	26,110	414,206	418,621
1882 (Not ascertained).....				

### RAILWAYS AND CANALS IN THE UNITED STATES.

No. 8.—STATEMENT showing the Number of Tons transported upon the New York State Canals, the N. Y. Central and Hudson River Railroad, the N. Y. Lake Erie and Western Railroad, and the Pennsylvania Railroad, for Years 1868 to 1882.

Year.	New York State Canals.	N. Y. Central and H. R. Railway.	N. Y. Lake Erie and Western Railway.	Pennsylvania Railway.	Baltimore and Ohio Railway.
1868.....	6,442,225	2,562,862	3,908,243	4,722,015	These four railroads are the roads competing with the Erie Canal for traffic between the Western States and the seaboard. The figures of the Baltimore and Ohio Railroad are not obtainable, but as nearly as can be ascertained its through tonnage is greater than the Erie Canal.
1869.....	5,859,080	3,190,810	4,312,209	5,402,991	
1870.....	6,173,769	4,122,000	4,852,505	5,804,051	
1871.....	6,467,888	4,532,056	4,844,208	7,100,294	
1872.....	6,673,370	4,393,965	5,564,274	8,459,535	
1873.....	6,361,782	5,523,724	6,777,652	9,998,794	
1874.....	5,804,588	5,759,672	6,990,250	9,118,419	
1875.....	4,859,858	5,678,808	6,765,188	9,797,176	
1876.....	4,172,129	6,510,508	6,488,184	10,600,547	
1877.....	4,955,963	6,078,273	6,752,839	10,438,394	
1878.....	5,171,320	7,889,389	6,721,724	11,627,228	
1879.....	5,362,372	9,101,012	8,811,123	14,457,502	
1880.....	6,462,290	10,576,754	9,445,392	16,341,568	
1881.....	5,179,192	11,591,192	11,086,823	18 to 19,000,000	
1882.....	5,467,423	Not ascertained	Not ascertained.	Not ascertained.	

No. 9.—STATEMENT showing Receipts of Flour and Grains at New York, Montreal, Portland, Boston, Philadelphia, Baltimore, New Orleans, distinguishing Receipts by the Erie, Champlain and St. Lawrence Canals at New York and Montreal for Years 1872 to 1882.

Year.	Total Receipts at seven Atlantic Sea-ports.	Receipts by Erie, Champlain and St. Lawrence Canals.	Receipts in excess of Canal Receipts.
	Bushels.	Bushels.	Bushels.
1872 .....	186,059,546	67,746,909	118,312,537
1873 .....	187,316,167	64,634,180	122,681,987
1874 .....	204,806,480	61,284,861	139,521,619
1875 .....	189,453,477	51,185,494	139,267,983
1876 .....	218,190,865	44,486,400	173,704,465
1877 .....	215,697,367	61,734,000	153,963,367
1878 .....	309,167,315	76,821,600	232,345,715
1879 .....	348,210,685	74,133,800	274,076,885
1880 .....	362,570,607	90,369,815	272,200,792
1881 .....	289,134,707	50,623,730	238,510,577
1882 .....	Not ascertained.	Not ascertained.	Not ascertained.

### RAILWAYS AND CANALS IN THE UNITED STATES.

No. 10.—STATEMENT showing Receipts of Flour and Grain by Canals and by Rail at New York, during seven months of Canal Navigation, May to November, inclusive, for Years 1877 to 1882.

Year.	By Canal.	By Rail.
	Bushels.	Bushels.
1877 .....	47,248,265	30,526,406
1878 .....	62,319,667	46,881,467
1879 .....	54,095,806	59,820,220
1880 .....	69,421,695	56,505,548
1881 .....	37,469,030	62,800,037
1882 .....	Not ascertained.	Not ascertained.

## RAILWAYS IN THE UNITED STATES.

No. 11.—STATEMENT showing amount of Freight moved, Earnings from Freight on thirteen leading Railroads during the Years 1873 and 1880.

Tons of Freight Moved.		Receipts from Freight.		Miles of Road.	
1873.	1880.	1873.	1880.	1873.	1880.
45,557,002	78,150,913	112,004,648	143,388,178	11,438	15,457

No. 12.—NUMBER of miles of Railroad in operation in the United States for a series of years.

1865.	1870.	1875.	1877.	1878.	1879.
35,085	52,885	74,096	79,089	81,776	86,497

NOTE.—For information respecting railways in Canada prior to Confederation, see General Report of the Commissioner of Public Works, 1867, Appendix 70, pp. 552 to 555, for expenditure, &c., and pp. 601 to 608 for traffic, &c.



APPENDIX No. 26.

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STATEMENT

OF CASES REFERRED TO THE

OFFICIAL ARBITRATORS,

DURING FISCAL YEAR ENDED 30TH, JUNE, 1883.

BY

CHARLES THIBAUT, SECRETARY.



APPENDIX 26.

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REPORT OF THE SECRETARY TO THE OFFICIAL ARBITRATORS.

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Ref.<sup>d</sup> No. 37,135.OFFICIAL ARBITRATORS, CANADA,  
OTTAWA, 9th August, 1883.

SIR,—I beg to transmit herewith a statement of the claims referred to and arbitrated upon by the Official Arbitrators, in connection with the Department of Public Works, during the fiscal year ended 30th June, 1883.

I have the honour to be, Sir,  
Your obedient servant,

CHS. THIBAUT,  
*Secretary to the Official Arbitrators.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

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STATEMENT of Claims referred to and arbitrated or reported upon by the Official Arbitrators, in connection with the Department of Public Works, during the Fiscal Year ended 30th June, 1883.

Claimants.	Nature of Claims.	When Referred.	To whom Referred.	Whether Referred for Award or Report.	Amount Claimed.	Amount Awarded or Recommended.	Date of Award or Report.	Remarks.
Simon, Peters, Moore & Wright .....	Quebec Harbour Commissioners, balance of contract for work done.....	1882. Aug. 22...	Full Board...	For award...	\$ cts. 126,589 44	\$ cts. 118,333 34	1882. Oct. 11... 1883.	
Patrick Larkin.....	Owen Sound Harbour, extra work done at	1883. Feb. 12...	do	do	Not stated...	1,776 57	March 2...	
Andrew Porter <i>et al.</i> .....	Lot 23, south side Wellington St., Ottawa, expropriated for Government purposes.	April 13	do	do	25,500 00	14,000 00	April 26...	Withdrawn.
Alexander Martin. ....	Tenant of said lot No. 23. ....	do 13...	do	do	.....	.....	.....	Withdrawn.
Joseph Kavanagh <i>et al.</i> ...	do do .....	do 13...	do	do	7,080 00	300 00	April 26...	
Wm. Shoolbred. ....	do do .....	do 13...	do	do	472 00	250 00	do 26...	
J. G. Butterworth <i>et al.</i> ...	do do .....	do 13...	do	do	.....	.....	.....	Withdrawn.
N. S. Tarr.....	do do .....	do 13...	do	do	.....	.....	.....	do

APPENDIX No 27

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STATEMENTS

SHOWING,

1ST.—PROPERTY LEASED BY THE DEPARTMENT,

AND,

2ND,—PROPERTY BOUGHT OR SOLD BY THE DEPARTMENT,

DURING FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

A. GOBEIL, Law Clerk.

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## APPENDIX No. 27.

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### PROPERTY LEASED, AND PROPERTY PURCHASED OR SOLD.

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[Ref. No. 40,06 3.]

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 2nd November, 1883.

SIR,—I have the honour to enclose herewith the following statements, which are needed for the Annual Report, viz. :—

1st. Of properties leased to or by the Department during the fiscal year ended the 30th June last ;

2nd. Of properties purchased and sold by the Department during the same period.

I have the honour to be, Sir,

Your obedient servant,

A. GOBEL.

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

## APPENDIX No. 27.

No. 1.—Statement of Properties Leased to or by the Department of Public Works during the Fiscal Year ended 30th June, 1883.

Date of Lease.	Lessors.	Lessees.	Property Leased.	For what Purpose.	Duration of Lease.	Amount Payable.	When Payable.
1882. Aug. 14...	The St. Lawrence & Ottawa Railway Co. (Assignment.)	Her Majesty .....	The building owned by H. Lee, Esq., on Wellington Street, Ottawa.	Departmental offices.	5 years from 1st July, 1878.	\$900 per year.	Quarterly.
1883. Feb. 1...	J. Durie & Son .....	do ...	The first and second flats of Nos. 33 and 35, N. side of Sparks Street, Ottawa.	do .....	2 years and 4 months from 1st January, 1883.	660 do ...	do
April 19...	Her Majesty .....	G. A. Beaudet ...	Permission to construct a dam in the River St. Lawrence at Côteau du Lac, Que.	Mill .....	During pleasure; 3 months' notice.	1 do ...	Yearly.

A. GOBEL.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 2nd November, 1883

No. 2.—Statement of Property Purchased or Sold by the Department of Public Works during the Fiscal Year ended 30th June 1883.

Date of Purchase or Sale.	Vendors.	Purchasers.	Description of Property.	For what Purpose used.	Area.	Price.
1882.						\$ cts.
July 20...	A. O'Brien .....	Her Majesty .....	Land near town of Picton, N.S., on the road to the Beeches, N. side of Picton Harbor.	Marine hospital .....	4 acres .....	1,545 00
do 25...	Vancouver Coal & Mining Co. ....	do .....	Lots Nos. 7 and 8, block LVL, in the town of Nanaimo, B.C.	Site for a public building .....	.....	1,000 00
Aug. 2...	J. Bamberger .....	do .....	Part of lots 2 and 3, on Stuart Street, Hamilton, Ont.	Site for immigrant shed .....	.....	1,450 00
do 4...	P. McHale .....	do .....	Release of all damages done by flooding 50 acres of E. ½ of lot 24, 8th con. Fitzroy, Ont., through construction of Chats dam.	.....	50 acres .....	435 00
Sept. 11...	Mary Mullin .....	do .....	Right of way and of vertical light over part of lot No. 14, N. side of Main Street, Hamilton.	In connection with post office .....	.....	400 00
do 18...	J. Covey .....	do .....	Lot No. 2,263, on Champlain Street, Quebec.	For construction of retaining wall to cliff .....	.....	2,200 00
do 19...	J. A. Bedson .....	do .....	Part of N.W. ¼ of section 2, township 13, range 2 east of principal meridian, Province of Manitoba—Rockwood, Lisgar County.	Penitentiary .....	.....	\$1,000, and N.E. ¼ sec. 2, tp. 13, range 2 E.
Oct. 5...	High Court of Justice, Ontario.	do .....	Order vesting in Her Majesty the Morris Lot on Court House Avenue, Brockville, Ont.	Site for a public building .....	6,812 sq. ft. ....	3,090 00
do 18...	W. D. Burn .....	do .....	Part of lots 1 and 2, block A, with building thereon, corner of King and Division Streets, Cobourg, Ont.	do .....	.....	12,000 00
Nov. 13...	Government of the Province of Quebec.	do .....	Reserve in grant to W. A. Griffith of lot 12, 5th range, township of Delisle, Saguenay, of right to Federal Government to use all land and timber required for works of Grande Décharge of Lake St. John, Que.	.....	.....	Free.
Dec. 16...	Mayor and Aldermen of S. John, N.B.	do .....	Lot No. 92, on Union Street, Carleton, St. John, N.B.	Site for a public building .....	50 x 100 ft. ....	900 00
do 19...	F. J. Preston .....	do .....	Lot of land, corner of Clifton Avenue and Park Street, Clifton, Ont.	do .....	80 x 90 ft. ....	1,600 00

Dec. 20...	Geo. Baptist & Co. ....	Her Majesty .....	Part of lot No. 73, parish of St. Boniface, township of Shawenegan, St. Maurice, Que. ....	For St. Maurice Works. ....	200 00
do 20...	B. Thibault .....	do .....	Part of lots 78 and 79, parish of St. Boniface, township of Shawenegan, St. Maurice, Que. ....	do .....	100 00
Jan. 13... 1883.	G. H. Wilson .. .	do .....	Lot on Gerrish Street, at Windsor, N.S. ....	Site for a public building, 120 x 106 ft. ....	2,500 00
do 15...	Government of the Province of Quebec.	do .....	Grant of N. $\frac{1}{2}$ of beach lot No. 26, and S. $\frac{1}{2}$ of lot 27, township of Carleton, Bonaventure Co., Que. ....	Site for Carleton Wharf. 1 acre 14 perches Free.	
do 20...	Her Majesty .....	R. Forsyth .....	Old portable engine formerly used for Government waterworks, Ottawa.	.....	275 00
Feb. 7...	S. Patterson (trustee of A. J. Burton's estate).	Her Majesty .....	Part of town lots 53 and 54, on Queen Street, Port Hope, Ont. ....	Site for a public building 77 x 175 ft. ....	3,000 00
do 7...	J. Mulligan and others (trustees of Dodd estate)	do .....	Lot of land adjoining above, at Port Hope, Ont. ....	do .....	800 00
do 7...	H. Meredith .....	do .....	Lot of land situate in rear of above, sold by J. Mulligan. ....	do .....	800 00
do 22...	J. L. Harris .....	do .....	Lot at the corner of Main and Telegraph Streets, Moncton, N.B. ....	do .....	4,500 00
March 26...	D. S. Hunt .....	do .....	Lot at the corner of Sumner and Fitzroy Streets, Summerside, P.E.I. ....	do .....	693 00
May 12...	M. Twomey .....	do .....	Lot at the corner of Dalhousie and Richmond Streets, Amherstburg, Ont. ....	do .....	2,200 00
do 19...	Jas. Ronald .....	do .....	Lot at the corner of King and Fourth Streets, Chatham, Ont. ....	Addition to public building. 25 x 56 ft. ....	2,500 00
June 12...	Jos. Reynar .....	do .....	Deed of his deep water and foreshore rights at his wharf property, Three Rivers, Que. ....	Harbor works, Three Rivers. Front of lots 2, 190 and 2, 193.	3,000 00
do 16...	The Canada Pulp Company (Limited).	do .....	Exchange of parts of lots 92 and 93 at Grand Mere Station, St. Maurice Works.	Station works .....	Land exchanged of equal value.
do 19...	C. W. Taylor .....	do .....	Lot No. 580, in the town of Gananoque, Ont.	Site for a public building .....	1,000 00
do 18...	D. Fraser .....	do .....	Lot of land at the corner of Dalhousie and Provost Streets, New Glasgow, N.S.	do .....	2,660 00
do 30...	W. Fraser .....	do .....	Lot adjoining the above lot in New Glasgow, N.S.	do .....	2,100 00
do 22...	Chas. Bent .....	do .....	Lot at the corner of Lorne and Prince Streets, Truro, N.S.	do .....	4,000 00
.....	Supreme Court of Nova Scotia.	In favor of Her Majesty.	Expropriation of land owned by A. McDonald at Point Edward, Sydney, N.S.	For quarantine. ....	164 40

A. GOBEIL.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 2nd November, 1883.



APPENDIX No 28.

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STATEMENT OF CONTRACTS

LET BY THE

DEPARTMENT OF PUBLIC WORKS,

DURING FISCAL YEAR ENDED 30TH JUNE, 1883.

BY

A. GOBEIL, Law Clerk.

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APPENDIX No. 28

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STATEMENT OF CONTRACTS LET BY THE DEPARTMENT. Etc.

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Ref. No. 40,412.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 12th November, 1883.

SIR,—I have the honour to enclose the following statements which are required for insertion in the Annual Report for 1882-83, viz:—

1. Statement of contracts let by this Department during the fiscal year ended 30th June last;
2. List of the Acts passed at last Session of Parliament, and having reference to this Department, or works under its charge;
3. Statement of Orders in Council or Proclamations respecting tolls and regulations on Public Works.

I have the honour to be, Sir,  
Your obedient servant,

A. GOBEIL.

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

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APPENDIX No. 28.—CONTRACTS let by the Department of Public Works, from 30th June, 1882, to 1st July, 1883.

Works.	Names of Contractors.	Date.	Amount.
			\$ cts.
PUBLIC BUILDINGS.			
<i>Ontario.</i>			
Belleville—Heating apparatus for Post Office, &c.....	Northcott & Alford.....	Nov. 30, '82.	4,100 00
do Interior fittings do .....	John Forin.....	Feb. 28, '83.	2,460 00
Brockville—Construction of Post Office, &c.....	Tompkins, Crain & Co... ..	do 10, '83.	37,320 00
Chatham do do .....	J. E. Askwith.....	Sept. 20, '82.	27,610 00
Clifton do do .....	do .....	May 9, '83.	28,000 00
Cornwall do do .....	Gordon & Ross.....	July 28, '82.	27,698 63
Hamilton do do .....	Van Allen, Brown & Love .....	Aug. 15, '82.	232,000 00
do do of an Immigrant Shed.....	John Knapman.....	Dec. 30, '82.	3,463 00
London—Alterations, &c., to Post Office.....	John Christie.....	Sept. 20, '82.	5,490 00
Port Hope—Construction of a Post Office, &c.....	W. Toms .....	May 5, '83.	25,740 00
Prince Arthur's Landing—Construction of an Immigrant Shed.....	C. H. Logan.....	do 28, '83.	4,687 00
Sarnia—Construction of an Immigrant Shed.....	do .....	do 28, '83.	2,541 00
St. Catharines—Construction of heating apparatus for Post Office, &c.....	D. S. Keith & Co.....	Dec. 19, '82.	2,950 00
St. Thomas—Construction of a Post Office, &c.....	H. Lindop.....	July 22, '82.	38,850 00
<i>Quebec.</i>			
Montreal—Drill Shed—Alterations and repairs. ....	J. B. St. Louis et frère....	June 27, '83.	29,897 00
do Inland Revenue Building—heating apparatus.....	R. Mitchell & Co.....	July 25, '82.	1,745 00
do St. Helen's Island—Repairs to Military Buildings.....	W. McDonald.....	Aug. 7, '82.	9,416 00
Quebec—Examining Warehouse—Construction.....	D. O'Brien.....	Mar. 15, '83.	53,000 00
do Fortification Walls—Repair No. 7, Sec 2....	Charles Jobin.....	Sept. 13, '82.	3,732 00
Hull—Construction of a Post Office, &c.....	William Toms .....	July 6, '82.	15,000 00
<i>New Brunswick.</i>			
Carleton (St. John)—Construction of a Post Office..	Causey, Bond & Milden..	May 18, '83.	8,951 00
Dorchester—Penitentiary—Completion of cell wing..	D. A. Duffy.....	June 23, '83.	44,500 00
Woodstock—Construction of a Post Office, &c.....	Joshua Limerick.....	Mar. 16, '83.	14,550 00
<i>Nova Scotia.</i>			
Pictou—Construction of a Marine Hospital.....	McDonald & Stewart.....	Aug. 14, '82.	5,735 00
Sydney do Quarantine Station.....	Hugh McDonald .....	Feb. 23, '83.	3,750 00
<i>Manitoba.</i>			
Winnipeg—Lieut.-Governor's Residence—Additions.	F. J. Bowles.....	Mar. 21, '83.	18,082 00
do Parliament Buildings—Completion of Lyons' contract.....	Gelley, Moberly & Souci-se .....	May 26, '83.	63,985 00
do Construction of temporary Post Office ....	C. H. Logan .....	April 14, '83.	6,131 00
<i>British Columbia.</i>			
Nanaimo—Construction of a Post Office, &c.....	Smith & Clark .....	Sept. 18, '82.	23,250 00

APPENDIX No. 28.—CONTRACTS let by the Department of Public Works, &c.—*Con.*

Works.	Names of Contractors.	Date.	Amount
<b>PUBLIC BUILDINGS—Concluded.</b>			\$ cts.
<i>North-West Territories.</i>			
Qu'Appelle—Construction of an Immigrant Shed (destroyed by fire).....	J. McCallum.....	Oct. 23, '82.	8,873 00
do Construction of an Immigrant Shed (to replace one burnt) .....	C. H. Logan.....	July 10, '83.	5,839 00
Regina—Construction of Offices for Indian Dep't.....	M. P. Zindord.....	June 26, '83.	6,050 00
<b>PUBLIC BUILDINGS.</b>			
<i>Ottawa.</i>			
Public Buildings—Coal for 1882-83 .....	G. W. McCullough.....	Aug. 22, '82.	3,605 00
do Removal of snow, 1882-83.....	A. Devlin.....	Dec. 4, '82.	425 00
do Statue of Sir Geo. E. Cartier, Bart.....	L. P. Hebert.....	May 7, '83.	5,400 00
Rideau Hall—Removal of snow, 1882-83 .....	J. A. Hunter.....	Dec. 1, '82.	365 00
<b>HARBOURS AND RIVERS.</b>			
<i>Ontario.</i>			
Collingwood—Construction of a Breakwater.....	J. D. Silcox (assigned to Fleming, Lindsay & Burdett).....	Aug. 9, '82.	26,950 00
Meaford—Repairs to Pier and Sheet Piling.....	Robert Reed .....	Nov. 11, '82.	9,999 00
Newcastle—Reconstruction and repairs to Pier.....	Munson & Rowe .....	April 26, '83.	11,000 00
Port Hope—Construction of a Breakwater .....	McNeeley & Walters .....	Oct. 19, '82.	11,261 61
Toronto—Protection works to Harbour (Contract A) .....	Cooke & Jones .....	Aug. 18, '82.	101,822 50
do do do (Contract B).....	do .....	do 18, '83.	101,563 00
Warton—Wharfing and Docks.....	David Porter.....	Sept. 26, '82.	42 500 00
<i>Quebec.</i>			
Chenal du Moine—Construction of two Piers.....	Elie Normand.....	June 9, '83.	2,400 00
<i>New Brunswick.</i>			
Caraquet—Construction of a Breakwater.....	R. Blackall.....	Jan. 6, '83.	3,440 00
<i>Nova Scotia.</i>			
Digby—Repairs to Pier, &c.....	G. S. Mayes .....	Nov. 8, '82.	3,708 00
Jordan River—Repairs to Breakwater.....	N. R. Freeman.....	Oct. 31, '82.	4,650 00
Port Lorne—Extension of do .....	G. S. Mayes .....	Feb. 1, '83.	4,940 00
South Ingonish—Repairs to do .....	McPherson & McKinnon.	April 16, '83.	16,450 00
<i>Prince Edward Island.</i>			
New London—Construction of a Dam and Breakwater .....	Thomas Reid.....	Feb. 8, '83.	3,873 00
St. Peter's Bay do Breakwater .....	John D. Sianott.....	do 10, '83.	3,930 00
<b>SLIDES AND BOOMS.</b>			
River St. Maurice—Construction of 8 Piers, 3,200 feet of Booms.....	Josaph Reynar.....	April 14, '83.	19,665 00

APPENDIX No. 28.—CONTRACTS let by the Department of Public Works, &c.—*Con.*

Works.	Names of Contractors.	Date.	Amount.
<b>BRIDGES.</b>			
Des Joachims—Construction of Interprovincial Bridge	Starrs, Herbert & O'Hanly.....	Sept. 8, '82.	25,300 00
<b>DREDGING.</b>			
Construction of 4 scows .....	Alex Miller .....	Mar. 28, '82.	3,760 00
<b>TELEGRAPHS.</b>			
Ottawa—Electric Cables for Telephone Service.....	Henley & Co. (B. Batson, Agent).....	Oct. 17, '82.	2,500 00
Province of Quebec—Poles for Telegraph Line, Pointe des Monts to Pentecost River.....	A. Gagnon .....	Mar. 16, '83.	2,125 00
Maritime Provinces—Construction and operation of Telegraph Line from Port au Basque to Cape Ray	Anglo-Amer. Tel. Co. ...	Oct. 16, '82.	.....

A. GOBEIL.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 12th November, 1883.

APPENDIX No. 29.

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LIST OF SOME OF THE ACTS OF PARLIAMENT

PASSED AT THE SESSION OF 1883,

AND HAVING REFERENCE TO

THE DEPARTMENT OF PUBLIC WORKS

OR WORKS UNDER ITS CHARGE.

BY

A. GOBEIL Law Clerk.



## APPENDIX No. 29

Ref. No. 40,419.]

List of some of the Public Acts of the Parliament of Canada, passed at the Session of 1883, and having reference to the Public Works Department or works under its charge.

Subject	Full Title of the Statute.	Chapter.	Page in Statute Book.
Booms, &c., their construction in navigable waters .....	An Act respecting booms and other works constructed in navigable waters, whether under the authority of Provincial Acts or otherwise .....	43	456
Booms, &c., their construction in navigable waters (amending above) .....	An Act to amend an Act of the present Session respecting booms and other works constructed in navigable waters, whether under the authority of Provincial Acts or otherwise .....	44	458
Civil Service. (Amending Act of 1882) .....	An Act to amend the "Canada Civil Service Act, 1882."	7	47
Graving Dock at Quebec (granting a further sum of \$100,000) .....	An Act to amend the Act 38 Vic., cap. 56, intituled: "An Act respecting the Graving Dock in the Harbour of Quebec, and authorizing the raising of a loan in respect thereof." .....	40	454
Harbours, Montreal (granting a further sum of \$900,000) .....	An Act to make further provision for deepening the ship channel of the River St. Lawrence, between Montreal and Quebec .....	38	453
Harbours, Quebec, rate of interest 4 per cent .....	An Act to amend the Act 36 Vic., cap. 62, and the Act 43 Vic., cap. 17, respecting the Quebec Harbour Commissioners .....	39	453
Public Works and Railways and Canals Departments. (Powers of Minister of Railways and Canals extended)...	An Act to amend "An Act respecting the offices of Receiver-General and Minister of Public Works," as to the powers of the Minister of Railways and Canals .....	5	46
Superannuation, consolidation of acts relating thereto .....	An Act to amend and consolidate the Acts relating to the superannuation of persons employed in the Civil Service of Canada .....	8	54
Tolls, on Slides, &c. ....	An Act to make further provision respecting the Regulation and Collection of Tolls on Government Timber Slides and other works constructed to facilitate the transmission of Timber, Lumber and Saw Logs .....	16	270

A. GOBEL.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 12th November, 1883.



APPENDIX No. 30.

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ORDERS IN COUNCIL & PROCLAMATIONS

RESPECTING

TOLLS AND REGULATIONS

ON

PUBLIC WORKS.

BY

A. GOBEIL, Law Clerk.

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[Ref. No. 40,412.]

## APPENDIX No 30

ORDERS IN COUNCIL and Proclamations respecting Tolls and Regulations  
on Public Works.

Subject.	Date of Order in Council.	Year. Page in Statute Book.	Pages in Canada Gazette.
Carillon Dam—Order cancelling Tolls on timber passing through the Dam and re- mitting the Tolls hitherto col- lected.....	15th July, 1882..	1883—cxvii .....	
Upper Ottawa Improvement Co.—Tariff of Tolls for 1883.....	10th Feb'y, 1883.	1883—cxvii .....	1431
Deschênes Slide—Order for the abandonment of that Slide and that it be no more considered as a public work.....	15th Dec., 1882..	.....	
Trout River—Order for the resumption of the management of works at Healy's Falls, Middle Falls, Ramsay Falls, Chisholm Rapids, en- trusted to a Committee in 1855.	21st Dec. 1882....	.....	

A. GOBEIL.

DEPARTMENT OF PUBLIC WORKS,  
OTTAWA, 12th November, 1883.



APPENDIX No. 31.

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ENLARGEMENT OF BOUNDARIES

AND

CREATION OF PROVISIONAL DISTRICTS.

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## APPENDIX No. 31

## ENLARGEMENT OF BOUNDARIES AND CREATION OF PROVISIONAL DISTRICTS.

Ref. No. 40,037.

## PROVINCE OF MANITOBA.

By the Act 44 Victoria, chapter 14, assented to 21st March, 1881, the boundaries of the Province of Manitoba were extended easterly to the eastern limit of the District of Keewatin; westerly to a line drawn between the twenty-ninth and thirtieth ranges of townships lying west of the first principal meridian in the system of Dominion land surveys, and northerly to the twelfth base line in said system of Dominion land surveys.

## DISTRICT OF KEEWATIN.

By the Act 39 Victoria, chapter 21, assented to 21st April, 1876, a certain portion of the North-West Territory was established as the "District of Keewatin." Pending the settlement of the western boundary of the Province of Ontario, the eastern boundary of this new district was described as a line drawn due north to Hudson's Bay from "the westerly boundary of the Province of Ontario on the International line dividing Canada from the United States of America." Its southern boundary was the International boundary line as far as the then eastern boundary of the Province of Manitoba, from which point the boundary of the new district proceeded "due north along the said easterly boundary of Manitoba to the north-east angle of the said Province; thence due west on the northern boundary of the said Province to the intersection by the said boundary of the westerly shore of Lake Manitoba;" thence along Lakes Manitoba "and Winnepegosis and Cedar Lake to the north end of the latter lake, and thence due north to the northerly limits of Canada;" the northern boundary of the district being along the said northerly limits of Canada to the point of intersection with the line drawn due north from the International boundary. These limits were very much reduced by the Act 44 Victoria, chapter 14, enlarging the boundaries of Manitoba, which is quoted above.

## ASSINIBOIA.

The District of Assiniboia, about 95,000 square miles in extent, is bounded on the south by the International boundary line, the 49th parallel; on the east by the western boundary of Manitoba; on the north by the 9th correction line of the Dominion Lands system of survey into townships, which is near to the 52nd parallel of latitude; on the west by the line dividing the 10th and 11th ranges of townships, numbered from the fourth initial meridian of the Dominion Lands system aforesaid.

## SASKATCHEWAN.

The District of Saskatchewan, about 114,000 square miles in extent, is bounded on the south by the District of Assiniboia and by Manitoba; on the east by Lake Winnipeg and the Nelson River, flowing therefrom into Hudson's Bay; on the

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north by the 18th correction line of the Dominion Lands Survey system; and on the west by the line of that system dividing the 10th and 11th ranges of townships numbered from the fourth initial meridian.

#### ALBERTA.

The District of Alberta, about 100,000 square miles in extent, is bounded on the south by the International boundary; on the east by the District of Assiniboia; on the west by the Province of British Columbia; and on the north by the 18th correction line before mentioned, which is near the 55th parallel of latitude.

#### ATHABASCA.

The District of Athabasca, about 122,000 square miles in extent, is bounded on the south by the District of Alberta; on the east by the line between the 10th and 11th ranges of the Dominion Lands townships, before mentioned, until, in proceeding northward, that line intersects the Athabasca River; then by that river and the Athabasca Lake and Slave River to the intersection of the last with the northern boundary of the district, which is to be the 32nd correction line of the Dominion Lands township system, and is very nearly on the 60th parallel of north latitude; westward by the Province of British Columbia.

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APPENDIX No. 32

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NATIONAL ART GALLERY.

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LIST OF PICTURES, &c., CONTRIBUTED.

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## APPENDIX No. 32.

## NATIONAL ART GALLERY.—LIST OF PICTURES, &amp;c., CONTRIBUTED

Ref. No. 39,778.

## NATIONAL ART GALLERY,

OTTAWA, 27th October, 1883.

SIR,—The following are pictures, &c., received by the Government from the Royal Canadian Academy:—

## OIL PAINTINGS.

- |   |                                 |
|---|---------------------------------|
| 1. Sunrise on the Saguenay (Cape Trinity) -       | L. R. O'Brien, P.R.C.A.         |
| 2. Laurentian Splendour, - - - - -                | John A. Fraser, R.C.A.          |
| 3. Trout Stream in the Forest, - - - - -          | Allan Edson, R.C.A.             |
| 4. Peonies, - - - - -                             | James Griffiths, R.C.A.         |
| 5. The Croppy Boy, - - - - -                      | Mrs. C. M. B. Schreiber, R.C.A. |
| 6. Summer Time, - - - - -                         | T. Mower Martin, R.C.A.         |
| 7. Indian Encampment at Lower St. Lawrence, -     | Wm. Raphael, R.C.A.             |
| 8. Beacon Light, St. John Harbor, - - - - -       | H. Sandham, R.C.A.              |
| 9. The Chorister, - - - - -                       | R. Harris, R.C.A.               |
| 10. Portrait d'un Militaire Belge, - - - - -      | Eugène Hamel, R.C.A.            |
| 11. Légende de berceau—Baby smiles at the angels, | N. Bourassa, R.C.A.             |
| 12. Down in the Laurentides, - - - - -            | Homer Watson, R.C.A.            |
| 13. Landscape, - - - - -                          | H. Perié, R.C.A.                |
| 14. Beware! - - - - -                             | J. C. Forbes, R.C.A.            |
| 15. On the Nouvelle River, Baie des Chaleur, -    | Forshaw Day, R.C.A.             |

## WATER COLOURS.

- |   |                          |
|---|--------------------------|
| 16. Dead Canadian Game, - - - - -             | D. Fowler, R.C.A.        |
| 17. The Last of the Brig, Mt. Desert, Maine - | Wm. N. Cresswell, R.C.A. |

## STATUARY.

- |   |                             |
|---|-----------------------------|
| 18. Statuette of Lacrosse Player, - - - - - | François Van Luppen, R.C.A. |
|---|-----------------------------|

## ARCHITECTURAL DRAWINGS.

- |   |                          |
|---|--------------------------|
| 19. Toronto University, - - - - -                   | Wm. Storm, R.C.A.        |
| 20. Royal Insurance Co's. Building, Montreal, -     | J. W. Hopkins, R.C.A.    |
| 21. Metropolitan Church, Toronto, - - - - -         | H. Langley, R.C.A.       |
| 22. St. James' Square Presbyterian Church, Toronto, | Jas. Smith, R.C.A.       |
| 23. Tower of West Block Departmental Building,      | Thos. S. Scott, R.C.A.   |
| 24. Elizabethian Staircase, - - - - -               | John W. H. Watts, R.C.A. |
| 25. Design for Parliament Buildings, - - - - -      | Thos. Fuller, R.C.A.     |

PRESENTED BY HIS EXCELLENCY THE MARQUIS OF LORNE.

26. Figure for a Sun Dial. Life Size Statute of a  
Warrior wounded, - - - - - François Van Luppen, R.C.A.

PRESENTED BY ALLAN GILMOUR, ESQ.

27. Golf of Naples, to the left Punta Campanella - Melbye.

PRESENTED BY E. L. FALARDEAU, ESQ.

28. Conspiracy of Catalina, after Salvator Rosa, - E. L. Falardeau.

PRESENTED BY SIR FREDERICK LEIGHTON, P.R.A:

29. Study of a Head (Sansone), - - - - - Sir Frederick Leighton, P.R.A.

DRAWINGS AND DESIGNS, THE PROPERTY OF THE GOVERNMENT, TRANSFERRED TO THE  
GALLERY.

30. General View of Ottawa, - - - - - Stent & Laver.  
31. Design for Parliament Buildings, Ottawa, - - - - - "  
32. Design for Government House, - - - - - Fuller & Jones.  
33. Proof Engravings presented by, - - - - - Messrs. Belden & Co.  
34. Etching presented by - - - - - Messrs. Wilson & Co.

The Gallery was opened to the public on the 27th May, 1882, His Excellency the Governor General and suite being the first visitors.

Up to 30th June last, 8,261 visitors registered their names.

Several art students have availed themselves of the opportunity to copy many of the pictures.

An insurance of \$11,000 has been effected on the collection.

I have the honour to be, Sir,  
Your obedient servant,

JOHN W. H. WATTS,  
*Curator.*

F. H. ENNIS, Esq.,  
Secretary, Department of Public Works.

APPENDIX No. 33.

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SUMMARY STATEMENTS  
OF  
EXPENDITURE ON PUBLIC WORKS,  
BY  
PROVINCIAL GOVERNMENT PRIOR TO CONFEDERATION  
AND FROM  
GOVERNMENT AND OTHER SOURCES,  
TO 30TH JUNE, 1882.

## APPENDIX No. 33.

SUMMARY of Expenditures by the Provincial Government on the construction of the Public Works of Lower and Upper Canada, prior to Confederation, 1st July, 1867.

Works.	Lower Canada now Prov. of Quebec.	Upper Canada now Prov. of Ontario.	Totals.
	\$ cts.	\$ cts.	\$ cts.
Canals (exclusive of River Improvements).....	6,912,308 24	16,188,747 01	23,101,055 25
Works on navigable rivers, or improvement of rivers.....	14,394 61	13,959 72	28,354 33
Total, Canals and Rivers.....	6,926,702 85	19,202,706 73	23,129,409 58
Harbours and piers.....	1,366,378 66	855,139 53	2,221,518 19
Lighthouses, beacons and buoys.....	1,144,690 70	541,300 14	1,685,990 84
Slides, dams, piers and booms.....	748,783 18	597,869 49	1,346,652 67
Roads, including Turnpike and Colonization Roads	3,760,381 25	3,113,623 69	6,874,004 94
Bridges, exclusive of those on Turnpike and Colo- nization Roads, the cost of which includes that of bridges.....	353,357 81	256,927 27	610,285 08
Public Buildings, exclusive of those constructed by charitable institutions or private donations.....	4,094,687 85	5,141,872 85	9,236,560 70
Provincial vessels, one-half of total cost charged to each Province.....	253,856 41	253,856 42	507,712 83
Total cost of Works, exclusive of Railways...	18,648,838 71	26,963,296 12	45,612,134 83
Railways, exclusive of subsidiary lines in United States..... (See Note A, below.)	43,276,252 42	93,486,964 58	136,763,217 00
Total cost of Works, including Railways.....	61,925,091 13	120,450,260 70	182,375,351 83
Deduct:—Expenditure from other than Govern- ment Funds, so far as ascertained.....	37,336,301 26	84,828,450 50	122,164,751 76
Total Government Expenditure.....	24,588,789 87	35,621,810 20	60,210,600 07
Note A.—Government Expenditure on Railways, included above.....	7,098,893 26	13,165,906 75	20,264,800 01

For details of above Summary, see General Abstracts, Appendix No. 70 of General Report of 1867.

# ABSTRACT STATEMENT of Expenditure on Construction and Improvement of the Public Works of Canada, since their commencement, to the 30th June, 1882.

Number.	Name of Work.	Government Expenditure.			Other than Government Expenditure.			Grand Total Expenditure up to 30th June, 1882.	
		Prior to Confederation.	Since Confederation.	Total Government Ex- penditure.	Prior to Confederation.	Since Confederation.	Total Ex- penditure from other than Government Funds.		
		\$	cts.	\$	cts.	\$	cts.	\$	cts.
1	Railways .....	34,146,260	66	56,583,401	82	90,729,662	48	90,729,662	48
2	Canals .....	18,797,913	90	23,447,564	27	42,245,478	17	48,410,983	42
	Totals, Railways and Canals..	52,944,174	56	80,030,966	09	132,975,140	65	139,140,645	90
3	Public Buildings.....	4,183,460	89	7,286,432	12	11,469,893	01	11,479,826	34
4	Harbours and Breakwaters.....	2,393,860	54	3,653,091	79	6,046,952	33	7,875,635	48
5	Improvement of Rivers.....	28,354	23	678,609	03	706,953	36	714,363	26
6	Dredges.....	135,472	43	309,929	28	445,401	71	445,401	71
7	Slides and Booms.....	1,346,652	67	305,110	26	1,651,762	93	1,651,762	93
8	Roads and Bridges.....	481,554	52	1,138,936	55	1,620,491	07	1,625,991	07
9	Telegraph Lines.....	1,685,990	84	(a) 360,050	38	300,050	38	360,050	38
10	Lighthouses.....	305,784	40	(b) 1,186,212	65	2,872,203	49	2,872,203	49
11	Dominion Steamers.....			186,250	66	492,035	06	650,491	66
	Totals, Public Works.....	10,561,130	62	15,104,622	72	25,665,753	34	27,675,125	82
	Grand Totals.....	63,505,305	18	95,135,588	81	158,640,893	99	166,815,771	72

(a) Exclusive of \$670,620.84, paid by the Department of Railways and Canals, and included in cost of Pacific Railway.

(b) This amount was expended as follows, viz: \$ 75,588 51 through Public Works Department.

and 1,110,624 14 do Marine and Fisheries Department, as shown in following table.

\$1,186,212 65

## LIGHT

Number.		Expenditure prior to <sup>m</sup> Confederation.			Expenditure since Con	
		From Government Funds.	From other than Government Funds.	Total, up to June 30, 1867.	Through Public Works Department.	Through Marine and Fisheries Department.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1		1,481,498 19	204,492 65	1,685,990 84	75,588 51	1,110,624 14
	Totals, Lighthouses:	1,481,498 19	204,492 65	1,685,990 84	75,588 51	1,110,624 14

## HOUSES.

Confederation.	Grand Total Expenditure on Construction up to 30th June, 1882.	Number.	Remarks.
Total for Fifteen Years ended 30th June, 1882.			
\$ cts.	\$ cts.		
1,186,212 65	2,872,203 49	1	<p>Prior to Confederation the management of the lighthouses in the Province of Ontario, and in the Province of Quebec <i>above</i> Montreal, was vested in the Department of Public Works, whilst the lighthouses <i>below</i> Montreal were managed by the Trinity Houses of Montreal and Quebec. In New Brunswick they were managed by a Board of Commissioners of Public Institutions, and in Nova Scotia by the Board of Works. After Confederation, the Department of Marine and Fisheries was charged, on its establishment, with the management of the lights, and by Order in Council (No. 9,151), dated the 11th January. 1870, the construction of lighthouses, at a cost not exceeding \$10,000, was transferred to that Department.</p> <p>For detailed statement of expenditure, <i>prior</i> to Confederation, on lighthouses in Ontario and Quebec—See “Report of the Commissioner of Public Works” for 1867, Appendices No. 10, pages 72 to 89, and No. 70, pages 498 to 501, and 550 and 551.</p> <p>For expenditure <i>since</i> Confederation: Through Public Works Department,—See Appendix No. 1, of General Report, on Public Works 1867–1882.</p>
1,186,212 65	2,872,203 49		

GENERAL ABSTRACT showing amounts expended in each Province on Construction  
inception to

Number.	Works.	Nova Scotia.	Prince Edward Island.	New Brunswick.
			Entered Confederation, 1st July, 1871.	
		\$ cts.	\$ cts.	\$ cts.
1	Railways .....	15,653,099 13	3,466,990 60	16,942,454 66
2	Canals .....	653,321 12	.....	44,387 53
	Totals, Railways and Canals.....	16,306,420 25	3,466,990 60	16,986,842 19
3	Public Buildings.....	164,110 00	75,253 68	1,248,672 00
4	Harbours and breakwaters.....	906,491 69	580,077 82	589,538 80
5	Improvement of rivers.....	79,869 38	36,704 18	119,769 06
6	Dredges.....	120,044 76	23,582 07	105,044 66
7	Slides and booms.....	.....	.....	2,368 34
8	Roads and bridges .....	.....	.....	13,940 00
9	Telegraph lines.....	67,945 88	.....	157,126 75
10	Lighthouses .....	397,359 30	52,619 45	162,622 77
11	Dominion Steamers.....	162,622 76	162,622 76	.....
	Totals, Public Works.....	1,898,443 66	929,859 96	2,399,082 38
	Grand Totals.....	18,204,863 91	4,396,850 56	19,385,924 57

\* Including \$1,705,840 58 amount expended by the Montreal Harbour Commissioners, and paid out  
July, 1873, to 31st

† Including \$1,560,918 65 amount expended by Montreal Harbour Commissioners, and paid out

\$3,266,759 23

N.B.—The expenditure shown is only up to 30th June, 1882, the Public Accounts for 1882-83 not

and Improvement of the Public Works of the Dominion of Canada since their 30th June, 1882.

Quebec.	Ontario.	Entered Confederation.			Miscellaneous not apportioned to any of the Provinces.	Total.	Number.
		15th July, 1870.		20th July, 1871. British Columbia.			
		Manitoba.	North-West Territories.				
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
15,450,429 60	26,285,513 17	5,641,181 85	2,715,811 86	4,574,181 61	.....	90,729,662 48	1
*17,971,172 76	29,698,970 69	.....	326,675 65	.....	9,885 67	48,410,983 42	2
33,422,172 36	55,984,483 86	5,641,181 85	2,748,487 51	4,574,181 61	9,885 67	139,140,645 90	
2,598,637 45	6,473,663 03	326,247 47	228,135 40	260,473 98	104,633 33	11,479,826 34	3
†3,245,803 13	2,462,322 53	223 39	.....	84,494 87	6,083 35	7,875,035 48	4
307,867 28	119,572 49	17,364 96	714 48	32,501 53	.....	714,363 36	5
37,374 00	59,658 37	.....	.....	99,697 96	.....	445,401 71	6
1,009,594 17	642,168 76	.....	.....	.....	.....	1,651,762 93	7
525,068 48	732,249 72	366,304 53	.....	.....	.....	1,625,991 07	8
180,958 74	.....	72 00	.....	89,879 49	7,254 27	360,050 38	9
1,502,105 06	713,600 41	1,590 86	.....	44,167 04	4,634 62	2,872,203 49	10
162,622 77	.....	.....	.....	.....	.....	650,491 06	11
9,570,031 08	11,203,235 31	711,803 21	228,849 88	611,214 77	122,605 57	27,675,125 82	
42,992,203 44	67,187,719 17	6,352,985 06	2,977,337 39	5,185,396 38	132,491 24	166,815,771 72	

of their own funds on account of dredging St. Lawrence River, between Quebec and Montreal, from 1st December, 1881.

of their own funds, on account of harbour works, from 1st July, 1867, to 30th June, 1882.

being as yet published.

O. D.

## EXPENDITURE ON ACCOUNT OF WORKS authorized by Special

Number.	Name of Work.	Amount Authorized.	Expenditure from 1st July, 1867, to 30th June, 1877.		1878.	
			\$	cts.	\$	cts.
1	St. Lawrence River, deepening between Quebec and Montreal—					
	36 Vic., cap. 60.....\$1,500,000 00					
	45 do 44.....280,000 00					
		1,780,000 00	858,000 00		IX.	130,000 00
2	Quebec Harbour Improvement—					
	36 Vic., cap. 62.....\$1,200,000 00					
	43 do 17.....250,000 00					
	45 do 47.....375,000 00					
		1,825,000 00	(a) 723,000 00		IX.	75,000 00
3	Lévis Graving Dock—					
	38 Vic., cap. 66.....	500,000 00	.....	.....	.....	.....
4	Esquimaux Graving Dock, B.C.—					
	37 Vic., cap. 17 }	250,000 00	.....	.....	.....	.....
	43 do 15 }		.....	.....	.....	.....
	Totals.....	4,355,000 00	1,581,000 00			205,000 00

(a) Exclusive of the sum of \$1,140, being amount of a cheque issued in 1873, and now cancelled.

## Acts of Parliament, from 1st July, 1867, to 30th June, 1882.

Year ended 30th June.								Total. for 15 years ended 30th June, 1882.	Number
1879.		1880.		1881.		1882.			
	\$ cts		\$ cts.		\$ cts.		\$ cts.	\$ cts.	
XIII.	178,000 00	XVII.	140,000 00	.....	.....	XIX.	194,000 00	1,500,000 00	1
XIII.	150,000 00	XVII.	200,000 00	XVII.	202,000 00	XIX.	55,000 00	1,405,000 00	2
XIII.	50,000 00	XVII.	75,000 00	XVII.	175,000 00	XIX.	50,000 00	350,000 00	3
.....	.....	.....	.....	XVII.	9,891 00	XXIII	37,769 22	47,660 22	4
	378,000 00		415,000 00		386,891 00		336,769 22	3,302,660 22	

## OTTAWA PARLIAMENT AND DEPARTMENTAL BUILDINGS.

DETAILED Statement of Expenditure for Construction, since the commencement of above Buildings (1859), to 30th June, 1882.

	Prior to Confederation.	Since Confederation.	Total.	Grand Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
PARLIAMENT BUILDING.....	1,419,355 68	91,188 89	1,510,544 57	
Library.....		301,812 45	301,812 45	
Main Tower (completion).....		24,500 25	(a) 24,500 25	
Fire and water service, $\frac{1}{2}$ cost.....		36,206 55	36,206 55	
Totals.....	1,419,355 68	453,708 14		1,873,063 82
EASTERN BLOCK.....	641,036 37	17,470 07	658,506 44	
Attics.....		10,516 60	10,516 60	
Fire and water service $\frac{1}{4}$ of cost.....		18,104 85	18,104 85	
Alterations and additions.....		10,589 14	10,589 14	
Vault (completion of).....		8,822 98	8,822 98	
Totals.....	641,036 37	65,512 64		706,549 01
WESTERN BLOCK.....	641,036 38	17,470 07	658,506 45	
Extension.....		462,247 11	462,247 11	
Fire and water service, $\frac{1}{4}$ of cost.....		17,721 23	17,721 23	
Alterations and additions.....		10,981 77	10,981 77	
Totals.....	641,036 38	508,420 18		1,149,456 56
GROUNDS, viz :—				
Clearing do, making roads, &c.....	22,565 50		22,565 50	
Fence walls.....		89,855 71	89,855 71	
Excavating grounds.....		70,800 99	70,800 99	
Terrace walls.....		38,192 67	38,192 67	
Laying out grounds, lamp posts, &c.....		150,326 60	150,326 60	
Footpaths.....		10,313 54	10,313 54	
Conservatory, laboratory, &c.....		2,360 00	2,360 00	
Marshall Wood's claim.....		13,615 50	13,615 50	
Totals.....	22,565 50	375,465 01		398,030 69
WORKSHOPS (now Supreme Court).....		50,232 69	50,232 69	(b) 50,232 51
Sheds, drying house, &c.....		1,657 45	1,657 45	1,657 45
Grand Totals.....	2,723,993 93	1,454,996 11		4,178,990 04

(a). Including \$752.63, being cost of the tower bell.

(b). Apart from this amount, a sum of \$13,979.70 (see App. 43, page 1192 of General Report on Public Works 1867 to 1882), was expended for the conversion of the workshops into Supreme Court, making a total outlay of \$64,212.39 on that building.

N.B.—The above expenditure is charged as follows, viz :—

Against "Capital".....	\$ 4,087,811 69
do "Consolidated Fund".....	91,178 35
	<u>\$ 4,178,990 04</u>

O. DIONNE,  
Accountant.

APPENDIX No. 34.

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LIST OF OFFICERS OF THE DEPARTMENT.

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Ref. No. 36,031.

## APPENDIX

LIST of the Members, Commissioners and Assistant Commissioners of the Board  
Chief Architects of the Department

Chairman, Commissioners and Ministers.			Assistant Commissioners and Deputy Ministers.	
Names.	From	To	Names.	Date of Appointment.
<i>Under Statute 4-5 Vic., Cap. 38, Cor- poration of Board of Works.</i>				
Hon. H. H. Killaly, Chairman .....	.....	.....	.....	.....
D. Daly. .... } S. B. Harrison... } J. Davidson, Esq. }	Dec. 29, 1841.	Oct. 3, 1844.	Members....	
<i>New Board of Works.</i>				
Hon. H. H. Killaly, Chairman..... } D. Daly. .... } W. H. Draper... } W. Morris ..... } D. B. Papineau. }	Oct. 5, 1844.	June 8, 1846.	Members..	
<i>Under Statute 9 Vic., Cap. 37, etc.</i>				
Hon. W. B. Robinson, Chief Commis- sioner...	July 4, 1846.	Mar. 10, 1848.	Hon. Chas. Eus. Cas- grain, Asst. Com- missioner.	Aug. 1, 1846.
E. P. Taché do ...	Mar. 11, 1848.	Nov. 26, 1849.	Hon. M. Cameron, Asst. Commissioner	Mar. 11, 1848.
J. Chabot do ...	Dec. 15, 1849.	Mar. 31, 1850.	Jno. Wetenhall, Asst. Commissioner.	Feb. 2, 1850.
W. H. Merritt do ...	April 20, 1850.	Feb. 11, 1851.	Hon. Jos. Bourret, Asst. Commissioner	April 20, 1850.
J. Bourret do ...	Feb. 15, 1851.	Oct. 27, 1851.	Hon. H. H. Killaly, Asst. Commissioner	Feb. 15, 1851.
John Young do ...	Oct. 28, 1851.	Sept. 22, 1852.	.....	.....
J. Chabot do ...	Sept. 23, 1852.	Jan. 26, 1855.		
F. Lemieux do ...	Jan. 27, 1855.	Nov. 25, 1857.		
C. Alleyne do ...	Nov. 28, 1857.	Aug. 1, 1858.		
L. H. Holton do ...	Aug. 2, 1858.	do 6, 1858.		
L. V. Sicotte do ...	do 6, 1858.	Jan. 10, 1859.	Samuel Keefer, Asst. Commissioner.	May 6, 1859.
John Rose do ...	Jan 15, 1859.	June 12, 1861.		
Jos. Cauchon, Commissioner ...	June 15, 1861.	May 23, 1862.		
U. J. Tessier do ...	May 24, 1862.	do 27, 1863.		
L. T. Drummond do ...	do 28, 1863.	July 23, 1863.		
M. Laframboise do ...	July 23, 1863.	Mar. 29, 1864.	Toussaint Trudeau, Asst. Commissioner	Mar. 15, 1864.
J. C. Chapais do ...	Mar. 30, 1864.	June 30, 1867.		
<i>Under Statute 31 Vic., Cap. 12.</i>				
Hon. Wm. McDougall, Minister .....	July 1, 1867.	Oct. —, 1869.	Toussaint Trudeau, Deputy Minister.	May —, 1868.
do H. L. Langevin, C.B., Minister	Dec. 8, 1869.	Nov. 5, 1873.		
do Alexander Mackenzie do ..	Nov. 7, 1873.	Oct. 16, 1878.		
Sir Chas. Tupper, C.B., K.C.M.G., Minister .....	Oct. 17, 1878.	May 20, 1879.		
Sir Hector L. Langevin, C.B., K.C.M.G., Minister .....	May 20, 1879.	.....	G. F. Baillairgé, Deputy Minister.	Oct. 4, 1879.

## No. 34.

of Works, and of the Ministers, Deputy Ministers, Secretaries, Chief Engineers and of Public Works, from 1841 to 1882.

Secretaries.		Chief Engineers.		Chief Architects.	
Names.	Date of Appointment.	Names.	Date of Appointment.	Names.	Date of Appointment.
Thomas A. Begly..	Aug. 17, 1841.	Samuel Keefer....	Aug. 17, 1841.	F. P. Rubidge, Architect and Asst. Engineer.	Dec. 15, 1841.
Thomas A. Begly, under Act estab- lishing Dept. of Public Works.	Sept. 25, 1847.				
.....	.....	John Page.....	Oct. 31, 1853.		
Toussaint Trudeau	Dec. 13, 1859.				
Frederick Braun ...	Mar. 8, 1864.				
.....	.....	G. F. Baillairgé, Asst. Chief En- gineer.	July 5, 1871.	Thos. S. Scott.....	Feb. 7, 1872.
{ S. Chapleau.....	Oct. 4, 1879.	H. F. Perley.....	Nov. 25, 1880.	Thos. Fuller.....	Oct. 31, 1881.
{ F. H. Ennis.....	Nov. 4, 1880.				



APPENDIX No. 35

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**OFFICIAL CORRESPONDENCE**

**From 1st July, 1867, to 30th June, 1883.**



## APPENDIX No. 35.

[Ref. No. 40,040.]

## OFFICIAL CORRESPONDENCE,

LIST of Letters Received and Sent from 1st July, 1867 to 30th June, 1883.

Year3.				Received.	Sent.
1867—	From 1st July to 31st December .....			2,075	1,511
1868	do 1st January to 31st December.....			3,498	2,317
1869	do do do .....			3,448	2,171
1870	do do do .....			4,961	3,185
1871	do do do .....			6,268	3,983
1872	do do do .....			8,333	4,428
1873	do do do .....			10,072	5,707
1874	do do do .....			9,800	5,043
1875	do do do .....			9,006	5,006
1876	do do do .....			7,971	4,773
1877	do do do .....			7,517	4,425
1878	do do do .....			6,886	4,021
1879	do do to 6th October.....			7,186	4,547
1879*	do 7th October to 31st December.....			2,033	810
1880	do 1st January do .....			8,451	4,410
1881	do do do .....			9,599	5,529
1882	do do do .....			10,505	5,688
1883	do to 30th June.....			4,195	2,803

\* By an Order in Council, approved on 19th May, 1879, published at page 1496 of the *Canada Gazette*, the 20th May of that year was fixed as the day for separating the Department of Railways and Canals from the Department of Public Works, in accordance with Act 42 Vic., chap. 7. The staff of officers and clerks of the Department of Public Works continued to manage in common the business of the two Departments until the 1st October, when an Order in Council was approved dividing the staff between the two Departments. The first letter of the new Department of Public Works was written on 7th October.

The above list does not include the correspondence of the chief officers of the Department with their assistants and the public which averages over 8,000 letters per year.



APPENDIX No. 36.

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MONTREAL HARBOUR.

—

REPORT ON INUNDATIONS

AND

PROPOSED REMEDIES.

BY

Major D. COLE, R.E.,

AND

Lieut. S. WESTMACOTT, R.E.

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## APPENDIX No. 36.

## MONTREAL HARBOUR.

Ref. No. 41,860.

CHIEF ENGINEER'S OFFICE,  
OTTAWA, 1st Dec., 1883.

SIR,—After I had completed my report on the Shearer scheme (so called), I had sent to me a copy of a report made in 1841 by officers of the Royal Engineer's on the periodical flooding of Montreal and means for its prevention, in which reference is made to a project of a similar character to that proposed in the Shearer scheme; and I herewith transmit a copy of the said report to be placed on record in the Department.

I am, Sir,

Your obedient servant,

HENRY F. PERLEY,

*Chief Engineer.*

F. H. ENNIS, Esq.,

Secretary, Department Public Works.

MONTREAL, 29th June, 1841.

REPORT ON THE CAUSES OF THE PERIODICAL INUNDATION OF PART OF THE CITY OF MONTREAL CALLED GRIFFINTOWN, OR ST. ANNE'S SUBURBS; ON THE POSSIBILITY OF REMOVING THOSE CAUSES, OR OF OBTAINING THEIR EFFECTS.

In pursuance of the commands of His Excellency the Governor General, as conveyed in the Civil Secretary's letter of the 15th January last, relative to the periodical inundations in the St. Anne's suburbs of this city, the Commissioners appointed by His Excellency have the honor to submit the result of their enquiries and examinations, with plans, sections and estimate founded thereon, of the probable expense of protecting the city from this calamity.

The subject naturally divides itself into several principal sections:—

1. The rise of water in Montreal Harbour at the end of December or beginning of January of each year, and on the breaking up of the ice in the spring.

The natural and artificial causes leading towards this result, and the consequent flooding of Griffintown.

2. The rise of water in St. Pierre River and its effects on the inundation of the city and neighbourhood, with the means of preventing the evil.

3. The sewers, drains, and their courses by which the back-water of the St. Lawrence is admitted into the city, before the overflow of the banks and upper quays.

4. The small streams which usually fall into the St. Lawrence within the precincts of the city, and the means of guarding against their overflow when their usual course is stopped during the inundation.

Firstly. The rise of water in the harbour is obviously caused by the accumulation of ice from the rapids above, which, being stopped by the field ice below, is forced under it from the pressure above, until it grounds on the shoals in and below the harbour, and being confined by the narrow channels

on each side of the Island of St. Helen, forms a succession of dams as far as the head of the island and the new market, from whence the inundation was on a dead level this winter, as far as the canal; and, from the information we have obtained, it appears that the deviation in other years is not material. The great body of ice in the centre of the river, when arrested in its course, *shoves* not only downwards, but sideways towards the shores, and even backwards, when out of the current, as below Windmill Point.

**Ice dams.** It then grounds on the shoals and forms accumulations, which, in some instances, have done damage to the houses along the quays.

The accumulations on the shoals and wharves at and above the new market being nearly parallel to the shore, do not, in our opinion, materially affect the rise of water in the river.

The communications from intelligent and observing residents, who have favored us by their written or personal communications, show that the accumulations vary in extent and situation.

That the relative heights of water in different years corresponds with the alterations of frost and thaw, before the ice became fixed, and that when the frost is very steady at this period, a comparatively small rise of water may be expected, probably from the small quantity of floating ice which comes down the river. It is also generally observed that when the ice passes down the last channel without choking or "shoving" that there is no excessive rise of water in the harbour, and also that if this channel be choked, as well as the western one, that the greatest rise is to be apprehended, as was the case this winter, the "air hole," a vent, being below St. Helen's.

**Causes of unequal rise of water in different years.** These facts, connected with the parallel situation of the accumulations to the shore, and the uniform level of the inundation above the new market, apparently prove that the wharves have no effect on the inundation. Their proportion to the breadth of the river is very trifling.

**Effect of the wharves.** This view is corroborated by several intelligent correspondents, who vouch from personal observation that the water has risen to a greater height before these improvements were made, and in particular about fifty years ago, when the water covered the whole of the southern part of St. Paul street. Several years after this the lower floors of the Grey Nunnery were inundated to a great depth. In the winter of 1809-10, the water rose high enough to float timber over Grey Nun street.

**Rise in former years.** In later years the greatest rise was that of 1837-38, when the water rose about one foot higher than in the present year. That in 1839-40, although higher than usual, was three feet lower than that of this year.

**Duration of Flood.** The duration of the highest winter flood varies. It generally does not exceed two days, as was the case this year and the preceding, but in 1837-38, which was a very mild winter, the flood was very high, though perhaps, not at its highest, during fourteen days. Some relief may, however, be expected in less than twenty-four hours. The city is always more or less affected by it in the cellars for several weeks.

**Height of flood above lowest water.** The greatest flood is about 20 feet above summer level in the harbour and about 12 feet difference at St. Mary's Rapid, between the two periods, at that place.

**Spring Flood.** The spring flood is lower and of less duration, as the ice is then unequal to support a great head of water, but from the greater body of floating ice more damage has been occasioned by the latter to the houses bordering the quays, at this season, than by the water.

The most remarkable effect of the ice was in 1792 or 1793, and in 1832, the water rose to the height of the present quay wall. The temperature has also an effect on the spring flood, and southerly winds, by detaching large portions of ice, increase the accumulation of the flood by the accompanying rain.

If the river is open at the Current St. Mary, the rise of water is not to be dreaded in the spring.

From the foregoing facts and the levels taken for the Commissioners, and from the coincidence of the accumulations with the narrows and shoals, at and below the head of the Island and the new market, we are of the opinion that the obstructions affecting the inundation commence at those points and continue downwards on both sides of the island until the river opens below it.

As before stated, there is no very high flood if the channel is open on either side of St. Helen's, which appears to prove that there is always a passage below sufficient to relieve the town.

St. Pierre  
River.

Secondly.—Dams of ice, similar to those before mentioned, are formed above the harbour, and in the channel inside of Nun's Island, which raise the water above them and back it up the St. Pierre River until it overflows its banks, when it flows in a rapid stream downwards on the east side of the canal, and through the culvert at St. Gabriel's Farm, to the west side.

This rise is nearly simultaneous with that of the back-water in the harbour, and meets the latter flowing southwards about St. Gabriel's Farm. Its level is about 2 feet above the harbour back-water and has, therefore, much increased the mischief caused by the inundation. It has flowed over the canal banks in several years, and in 1837-38 to a depth of  $4\frac{1}{2}$  inches, and probably caused the very great flood of that year in Griffintown.

The back-water did not, in the present year, flow up the St. Pierre beyond the culvert under the canal near Mr. Gregory's. Should it do so in other years, it would be diverted on that side from the city by a ridge running from Mr. Gregory's westward across the Upper Lachine Road to the Côté. This is the dividing ridge between the water of the Holwell Creek and that of the rivulet flowing through the Tanneries to the St. Pierre.

It has been proposed to embank the St. Pierre, to prevent its overflowing on the east side of the canal, but this work, by preventing the relief afforded by the overflow, might back up the water to a greater height along the banks of the St. Lawrence above the St. Pierre, and up the valley of the latter.

As the farms on the east of the canal are not injured by the inundation, and do not come within our instructions, we avoid tampering with the natural course of the water.

Drains and  
sewers.

Quicksands.

Streams  
within the  
city.

Holwell creek

Thirdly.—The back-water rises in the cellars of the houses within its sphere nearly as fast as in the harbour, through the St. Anne's Creek and other drains, and also by quicksands or gravel below the level of the quay wall. The remedies we shall afterwards submit. The influence of the quicksand is probably much less than is generally supposed. If it cannot be cut off, it will at least require small means to carry it off.

Fourthly.—The streams falling into the St. Lawrence within the precincts of the city, contribute to the inundation, and the mode of remedy requires consideration. The Holwell Creek is merely the drain of a marsh on the west side of Upper Lachine Road, as far as the ridge before mentioned, on the city side of the Tanneries. It is joined near the brewery of Messrs. Dow, by an offset from the St. Pierre, passing through the St. Gabriel culvert.

The latter stream can be confined to the east side of the canal during an inundation. The Holwell Creek discharges at Point à Cailliére. There is another stream which descends from Côte à Baron, and crosses De Bleury street, near the upper end. On arriving at a swamp at the head of St. Lawrence suburb, it passes by a watercourse into the Craig street tunnel, which meets the Holwell Creek before its discharge at Point à Cailliére. This stream will, hereafter, be diverted to.

Mountain  
streams.

Remedial  
plans pro-  
posed by in-  
dividuals.

Several plans have been proposed by individuals for the prevention of the rise of water in the harbour.

The most obvious remedy is to deepen the shoals in the west channel, and to lower the small island at the foot of St. Helen's to about 3 feet below summer level. The expense attending this plan would be very

Excavation in the bed of the river. great, the effect uncertain, as it would afford very little additional relief to the channel, which is 37 feet deep at low-water. The effect anticipated is that it would afford scope for the escape of the ice below, without forming dams.

In the summer it would have the injurious effect of lowering the water in the harbour, but on the other hand it would diminish the Rapid of St. Mary, by lowering the head and allowing the water to spread. Another objection to this plan is that it would require several seasons to complete it.

Although it is not recommended by the Commissioners for the present time and purpose, it may deserve attention at a future time as an auxiliary means of relief, keeping always in view the effect it would have on the harbour. The shoals above the head of the Current St. Mary may be removed without risk.

Proposed mole and its probable effects. It has been proposed and supported by several persons, whose opinions are worthy the greatest consideration, that a mole should be thrown out either continuous, or in detached piers, from Windmill Point on the shoals towards St. Helen's, or from a point higher up the river.

Two effects are anticipated by the movers of this plan: First, that by creating dead water above it, the ice would take sooner, and arrest the floating ice at a higher level, and thus prevent the formation of ice dams below the harbour.

Secondly, that if the mole were formed in piers it would break the ice in small pieces, which it is expected would not form into accumulations.

The first expectation is, however, problematical, and the second superfluous, because the greater part of the ice is broken small by the rapids, particularly that which comes down immediately before the ice is fixed, and is equally arrested by the ice below.

It was at first overlooked that the mole, if continuous, would occupy about one-third of the breadth of the river, and then the water thus backed up would very much increase the rapidity of the steamboat channel in the summer, and the only batteau channel would be blocked up. At the commencement of winter the ice would be arrested either in fields or masses above the mole and would flood lands above the rapids which are now exempt. The water, which in some seasons has flowed over the canal a few inches in depth, would then

Effects of proposed mole. be precipitated over in a torrent unless the banks were raised to a height which we cannot estimate, and would create evils far more fearful than those it is proposed to avoid.

If, instead of a continuous mole, piers were placed at intervals, the evils to be dreaded would certainly occur in proportion to the shortness of the intervals, but it is not certain that the good effects anticipated would actually ensue. The Commissioners do not, therefore, propose any work of this kind, but it may be a matter of future consideration as an auxiliary plan, whether a few piers may not be placed at a time, to ascertain the effect produced, and allowing several winters to elapse before further additions were made, to give a full trial of the effect.

We feel ourselves called on to dwell on the necessity of the greatest caution in attempting to cope with, or even to direct so powerful an agent.

The conflicting opinions which have been brought forward with respect to the remedy for this evil, show that the subject is involved in considerable difficulty. It is, indeed, of a more than usually complicated nature.

Remedy proposed by the Commissioners. By careful examination of the numerous points requiring notice, and by taking advantage of the local information afforded by many highly intelligent persons, the Commission is enabled to submit a remedy which allows, as far as possible, a free course to the flood outside the town, and to the streams within its limits, avoiding experiments which might only remove the seat of the evil, or add to the extent of it.

The Commissioners propose to add to the height of the quays and embankments bordering on the river and its overflow, so as to keep out the water of the St. Lawrence whether backed up from the harbour or the River St. Pierre; to close all the culverts and drains which admit the flood, either permanently or with flood-gates, and to dam off the city drains to a lower level.

Harbour. 1. Following the same order as in page 1, they propose to raise the embankment according to average section B from the upper harbour lock to the commencement of the quay wall at Grey Nun's street. From thence to raise the quay wall according to average section D to the end of the same at the water works. The thickness of 3 feet at top is considered sufficient as the present coping is much thinner, and on a level more exposed to the ice, and has stood firm. It may here be remarked that as the ice shoves obliquely upwards against the walls, it would have raised the present coping in spite of the earth behind it, had not the coping itself been sufficiently firm. The additional thickness of the new masonry at the back should be supported by counter arches butting on the heads of the counter-forts. The present coping to be removed and replaced at top, and the masonry to be of large ashlar stones, dowelled with wedges or bolts and nuts to as great a depth as required. The heads of the ramps might be closed before the flood with double-stop gate piers and clay between, but perhaps the least objectionable mode would be to raise the head of the ramp to the level of the top of the coping. The banquettes behind the wall may be earth, with occasional stone steps and posts to fend off carts, etc.

From the water works the embankment should be continued according to average section E, to where the level would cut out near the wood yard.

The whole of the embankments would be 3 feet above the flood of 1837-38 and more than 1 foot above the highest known flood.

Proposed remedy for the inundations from the St. Pierre. 2. The overflow of the St. Pierre may be confined to the east side of the canal, without adding to the flood on that side, by raising the tow-path of west embankment of canal from St. Gabriel Lock to the harbour upper lock, according to section F. The level to which it is proposed to raise it is the same as the harbour walls, but will be only 18 inches above the flood of 1837-38 at this point, which, it will be remembered, was on a higher level than the harbour breakwater.

When the embankment reaches the upper harbour lock, it should be thrown outside the present embankment, as shown on section G, so as not to interfere with the working of the lock gates.

By keeping the extra canal embankment to the west side, the necessity of raising the gates and lock walls is avoided. In either case no more damage can accrue to the canal than at present.

The flood gates of the St. Gabriel culvert should be made secure and tight. By these precautions the water of the St. Lawrence, which is backed up the St. Pierre and overflows its banks, is re-directed into the St. Lawrence without affecting Griffintown or adding elsewhere to the flood now experienced.

Closing of drains. 3. The drains opening into the St. Lawrence should be tightly closed. That of St. Anne's by a flood gate, with valves at different levels to let off the water in the creek when higher than in the river, which will be the case as the latter subsides.

It should work perpendicularly like a common flood gate, but may be divided into two parts by a stanchion in the middle, if one would be too heavy, of the entire width. It should be removed far enough from the mouth to secure it from frost and ice, and covered by a small house, with accommodation for a sluice-keeper, to ensure constant attention, and also to protect it above from the frost or other injury. All of the other drains should have small flood gates safe from the action of the ice, or, in preference, should be turned into the St. Anne's Creek by a main drain, parallel to the quay, and the present mouths be carefully stopped with masonry. All weepers or other openings in the wall should be carefully stopped. If the situation of a quicksand, or other pervious stratum can be ascertained, it should be cut off by a parallel trench. The stopping out of the water of the St. Lawrence and the St. Pierre would thus be complete.

4. There remains only one thing to report on, the means of carrying off the water of the streams passing through the city, when their usual course is thus cut off, which it is proposed to do by a tunnel chiefly of brick, according to section C, com-

mencing at the south end of Craig street and reversing its present inclination by giving it a fall to the river opposite Victoria Road, where in the present year the difference of level at the highest flood was 4 feet below that of the Custom House. The difference of level between high and low water above and below would give a greater difference of level, but as only the level of this winter could be ascertained by the Commission, they have preferred to take the least favorable view of it.

The head of the tunnel (where inclosed) should be horizontal to allow a free passage for the water above the lower level, and to keep as high as possible above the ice at the mouth, the sole of the tunnel having a slope of 4 feet to carry off deposits.

The heights of the inside of the tunnel would thus be 7 feet at the south end of Craig street and 11 feet at its mouth.

The relief thus afforded is not so extensive as we could desire, but it will relieve all ground floors and streets at the very highest floods, except a few inches on William street and its cross streets.

If the tunnel were continued to the slaughter house at the cross, it would afford only an additional relief of 2 feet 6 inches, but the sole of the tunnel must be sunk accordingly the whole way, and the additional expense of 4,500 feet lineal of drain incurred, which must be carried on by tunnelling, as the ground rises from Victoria Road. Moreover this additional expense would not relieve the cellars in the city, which must remain wet for several days, except extra means be used which we shall afterwards submit. The present water course from Craig street to St. Anne's Creek need not be disturbed, if the levels now proposed be adhered to. The great depth of St. Anne's Creek forbids the carrying back of the new tunnel further than we propose, which allows sufficient head room under the road for the tunnel at the flood height in the harbour.

During the inundation it would be a great relief to the tunnel, and lessen the chance of the water in it raising high enough to do injury, if the mountain stream referred to were turned by a cut from the head of St. Lawrence suburbs through the marsh and a slight rise of land, into the Ruisseau Migeon, which discharges at the cross. We have not been able to procure a section in time for this report nor an estimate, but judging from the size of the rise of the surface and the depth of the bed of the Migeon, it can apparently be done at little expense; at all events by deepening the bed of the Migeon for a short distance, the new tunnel might then be reduced to 6 feet diameter, the size of the present one in Craig street, and great saving made after deducting the expense of the cut proposed, as the only water to be carried off would be the drainage of Holwell Marsh, and the effect of rain or thaw which cannot continue long at this period without breaking up of the ice and giving temporary relief to the city.

A saving of 4,500 feet lineal of drainage might be made by carrying the drain from St. Anne's Creek below the town at the back of the quay wall under the banquette as far as the Military Hospital; but this would give 1 foot less relief, and the head of St. Anne's Creek must be raised for a considerable distance to join the new tunnel at the proper height. This plan would not injure the present drainage, but if carried to the bottom of St. Anne's Creek, so as to drain the cellars, it would be perhaps nearly as expensive as the cut behind the town. Its principal recommendation would be that of carrying off deposits below the water works. An idea prevails that the cut at the back of the town should be made for the sake of draining this part of the town, but this need not enter into any view of the subject, as the surface levels afford great facilities for drainage at a very trifling expense. We have thought it necessary to touch on all these points, so as to show the subject in all its bearings. The estimate does not provide for covering such parts of the water course as are now open, conceiving that, as they ought, under any circumstances to be covered, this proposition does not entail any considerable additional expense for these parts. It provides only for a timber drain through the open parts of the city and outskirts.

Cut from the Mountain stream to the Ruisseau Migeon.

Consequent reduction of expense.

Effect and expense of a cut near the river.

Drainage of the back of the city.

Steam engine  
as an auxil-  
iary.

In conclusion, we beg to refer to the proposition of an ingenious correspondent, who would bank out all the water except that within the city, and would employ a steam engine to carry off the latter, as well as rain. Although we have not adopted his plan altogether, as we wished first to take advantage of all the natural means of relief, we think that a steam engine of small power would be useful as an auxiliary, after all the before mentioned means of relief have been supplied, as it would then have to cope only with the drainage of the Holwell Marsh and of rains, in case of an accident to the tunnel or sluices, or of an unusually small difference of level between the water in the harbour and opposite Victoria Road. It might even keep the water in St. Anne's Creek low enough to relieve the greater part, or even all, the cellars of the city, as well as the surface in William street, before adverted to, if our levels of this year are usually correct for other years, and allow little for natural drainage.

To prevent backwater at an inconvenient height from the lower mouth of the tunnel, and to allow of the action of a steam engine, the estimate provides for a sluice gate and house at the lower end also.

All of which is respectfully submitted.

D. COLE,  
*Major, Royal Engineers.*

S. WESTMACOTT,  
*Lieut., Royal Engineers.*

To His Excellency,  
Right Hon. LORD SYDENHAM,  
Governor General of British North America.

---

DOMINION OF CANADA.

---

ANNUAL REPORT

OF THE

MINISTER

OF

RAILWAYS AND CANALS

FOR THE PAST

FISCAL YEAR FROM 1ST JULY, 1882, TO 30TH JUNE,

1883

ON THE WORKS UNDER HIS CONTROL.

---

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT THIRTY-FIRST  
VICTORIA, CHAPTER TWELVE, SECTION NINETEEN, AS AMENDED BY THE  
ACT FORTY-SECOND VICTORIA, CHAPTER SEVEN.

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PRINTED BY ORDER OF THE HOUSE OF COMMONS.

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OTTAWA:

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.

1884.



# CONTENTS OF REPORT.

## RAILWAYS:—

	PAGE.
Lines controlled or subsidized, list of.....	ix-x
CANADIAN PACIFIC RAILWAY:	
Distances—Trunk line.....	x
Subsidized portion of Canada Central (now C. P. R.).....	xi
Portion of road transferred by Government to Company.....	xi
CONSTRUCTION:	
<i>Under Government:</i>	
Port Arthur to Rat Portage.....	xi
In British Columbia.....	xi
<i>Under Canadian Pacific Railway:</i>	
From Callander to Port Arthur.....	xii
Winnipeg to Savona's Ferry (Kamloops).....	xiii
Subsidy paid.....	xiv
Branch lines ..	xiv
GOVERNMENT RAILWAYS:	
Financial position.....	xv
INTERCOLONIAL:	
Table of Distances.....	xvi
Additional accommodation provided.....	xvi
Total Expenditure on Capital Account.....	xvii
Expenditure chargeable to Capital Account during the fiscal year. ....	xvii
Gross Earnings and Working Expenses of the year.....	xviii
Traffic .....	xviii
Comparison of Mileage.....	xviii
St. Charles Branch.....	xviii
Windsor Branch.....	xix
Pictou Branch.....	xix
Dartmouth Branch.....	xix
Dalhousie Branch.....	xx

GOVERNMENT RAILWAYS—*Continued.*

PRINCE EDWARD ISLAND RAILWAY:	PAGE
Distances on Line and Extensions.....	xx
Expenditure on Capital and Revenue Account.....	xx
Gross Earnings and Expenditure of year.....	xxi
Traffic.....	xxi
Cape Traverse Branch.....	xxi

## SUBSIDIZED LINES:

Gravenhurst to Callander.....	xxii and xxiv
Rivière du Loup or Rivière Ouelle to Edmunston (New Brunswick Railway).....	xxii and xxiv
Oxford to New Glasgow (the Great American and European Short Line Railway Company).....	xxii and xxiv
Quebec and Lake St. John.....	xxii-xxiii and xxiv
Baie des Chaleurs.....	xxii
Caraquet Railway.....	xxii
Gatineau Valley Railway.....	xxii
Great American and Short Line Railway.....	xxii-xxiii and xxiv
International Railway.....	xxiii and xxiv
Northern and Western Railway.....	xxiii
Montreal and Western Railway.....	xxiii
Napanee, Tamworth and Quebec Railway.....	xxiii and xxiv
New Brunswick Railway.....	xxv
Petitcodiac to Havelock Corner.....	xxiii
St. John Bridge and Railway Extension.....	xxv
Vancouver Island Railway.....	xxv
Chignecto Marine Transport Railway.....	xxv
Statement as to progress made on above lines.....	xxiv and xxv

## CANALS:

List of.....	xxvi
Revenue accrued from.....	xxvi
RIVER ST. LAWRENCE AND LAKES .....	xxvi
St. Lawrence Canals.....	xxvii
Lachine Canal.....	xxvii
"        Works of Enlargement.....	xxvii
Beauharnois Canal.....	xxvii
Cornwall Canal.....	xxix
"        New Works.....	xxix

CANALS—Continued.—Williamsburgh Canals:		PAGE.
Farran's Point Canal.....		xxx
Rapide Plat....		xxx
Galops Canal.....		xxxi
“ New Works.....		xxxi
“ Rapid; Improvement of Channel.....		xxxii
WELLAND CANAL:		
Main Line, Lake Ontario to Lake Erie.....		xxxii
Welland River Branches.....		xxxiii
Grand River Feeder.....		xxxiii
Port Maitland Branch.....		xxxiii
Repairs and Maintenance..		xxxiv
New Works.....		xxxiv
BURLINGTON BAY CANAL.....		xxxv
MONTREAL, OTTAWA AND KINGSTON.....		xxxv
General Description .....		xxxv
Table of Distances.....		xxxv
St. Anne's Lock.....		xxxvi
“ New Works .....		xxxvi
Carillon Canal.....		xxxvi
“ New Works.....		xxxvi
Chute à Blondeau Canal.....		xxxvii
Grenville Canal.....		xxxvii
“ New Works.....		xxxviii
Rideau Canal.....		xxxix
Tay Canal, Works of Construction .....		xl
UPPER OTTAWA RIVER:		
Culbute Locks and Dam.....		xxxviii
“ New Works.....		xxxix
RICHELIEU AND LAKE CHAMPLAIN.....		
St. Ours' Lock and Dam.....		xli
Chambly Canal.....		xlii
ST. PETER'S CANAL .....		xlii
TRENT RIVER NAVIGATION:		
Description .....		xliii
Extent of Navigable and Unnavigable Reaches.....		xliii
List of Works, with repairs executed.....		xliv
New Works.....		xl v
MURRAY CANAL:		
Works of Construction.....		xlvi
SURVEY—Canal in British Columbia.....		xl vii

## TABLE OF APPENDICES.

	PAGE
Appendix No. 1—Statement of Expenditure during fiscal year .....	1
“ 2—Total Expenditure on Canal Construction and Enlargement .....	2
“ 3—Report on Canadian Pacific Railway, by Collingwood Schreiber, Chief Engineer including works of construction under direction of Government, and progress of location, construction and operation under the Canadian Pacific Railway Company ....	7 to 13
“ 4—General Report on Government Railways in operation, by Collingwood Schreiber, Engineer-in-Charge:—	
Intercolonial Railway.....	14
Prince Edward Island Railway. ....	17
St. Charles Branch.....	16
Windsor Branch Railway.....	17
Reports of Superintendents, &c.:—	
RAILWAYS :	
<i>Intercolonial Railway—</i>	
Report by D. Pottinger, Chief Superintendent.....	18
“ P. S. Archibald, Chief Engineer.....	22
“ H. A. Whitney, Mechanical Superintendent .....	26
“ T. J. Williams, Chief Accountant.....	27
Return of Accidents and Casualties.....	42
<i>Prince Edward Island Railway—</i>	
Report by James Coleman, Superintendent. ....	54
“ W. T. Huggan, Accountant.....	59
“ J. Unsworth, Mech. Supt. and Storekeeper .....	67
Return of Accidents and Casualties.....	75
<i>Windsor Branch Railway—</i>	
Report by D. Pottinger, Superintendent.....	76
“ R. B. Boggs, Accountant .....	77
“ P. S. Archibald, Engineer .....	80

CANALS :		PAGE
Appendix No. 5—Report on Lachine Canal.....		81
“ Beauharnois Canal .....		84
“ Chambly “ .....		86
“ St. Ours “ .....		87
by E. H. Parent, Superintending Engineer.		
“ Statement of depth of river water on the sills at the entrances of the above Canals.....		89
“ Statement of fines, damages, &c., collected on above canals.....		91
“ Ottawa River Canals.—		
“ St. Anne’s.....		93-95
“ Carillion.....		94-95
“ Chute à Blondeau.....		94
“ Grenville.....		94-96
“ Culbute ..		95-97
by D. Starke, Superintending Engineer.		
“ Cornwall Canal.....		97
by D. A. McDonnell, Superintendent.		
“ Statement showing depth of river water on sills at the entrance of the above canal...		98
“ Williamsburg Canals.....		98
by A. G. Macdonnell, Superintendent.		
“ Statement shewing depth of river water on sills of the above canals .....		100
“ Welland Canal.....		101
by Wm. Ellis, Superintendent.		
“ Statement of fines and damages collected on Welland Canal .....		117
“ Statement showing depth of water on sills at Port Dalhousie and Port Colborne.....		117-118
“ Burlington Bay Canal.....		118
by William Ellis, Superintendent.		
“ Rideau Canal.....		118
by F. A. Wise, Superintending Engineer.		

CANALS— <i>Concluded.</i>		PAGE
Appendix No. 5.—Report on Trent Canal Works .....	by Thomas D. Belcher, Superintending Engineer.	121
“ “ St. Peter's Canal.....	by Henry F. Perley, Engineer in Charge.	125
“ “ New Works. ....	Murray Canal. Trent Valley Canal. Trent Navigation. Burleigh Canal. Buckhorn Canal. Fenelon Falls Canal. Galops Rapid Improvements. Rapide Plat Canal. Cornwall Canal. by F. S. Rubidge, Engineer-in-Charge.	126
“ 6.—Statement of Claims—referred to and arbitrated or reported on by Official Arbitrators.....		129
“ 7.—General Statement, showing:—		
1st. Water Power and other public property leased on Canals and Railways during the fiscal year ended 30th June, 1883.....		135
2nd. Property purchased and property sold by the Department during the fiscal year ended 30th June, 1883.....		141
“ 8.—List of contracts entered into during the fiscal year ended 30th June, 1883.....		149
“ 9.—Reports furnished by the Canadian Pacific Railway Company, being 1st. Of Mr. A. B. Rogers, their Engi- neer in charge of Surveys of the Mountain section, as to the passage of the Rocky Mountain and Selkirk Ranges; and 2nd. Of Mr. James Ross, their Manager of construction.....		152
“ 10.—List of contracts entered into in connection with the Canadian Pacific Railway.....		155
“ 11.—Table of distances of stations between Ottawa and King- ston.....		156
“ 12.—Table showing dates of the closing of the Canals in 1882 and of their opening in 1883.....		157
“ 13.—St. Lawrence navigation, table of distances.....		158
“ 14.—Supplementary statement by Mr. Collingwood Schrieber		159

# REPORT.

1882—83.

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*To His Excellency the Most Honourable the Marquess of Lansdowne,  
Governor General of Canada, &c., &c., &c.*

MAY IT PLEASE YOUR EXCELLENCY:

I have the honour to submit the Annual Report of the Department of Railways and Canals for the fiscal year ended the 30th of June, 1883.

This Report is submitted in accordance with the provisions of the Act 31 Vic., Cap. 12 (1867), as amended by the Act 42 Vic., Cap. 7, Sections 4 and 5 (1879).

The Annual Reports of the Chief Engineers, together with general and special Reports from Superintendents, both of Railways and Canals, and from other Officers of the Department, are given in Appendices.

Attached hereto, (appendix 1, page 1) will be found a statement showing the amounts expended during the past fiscal year in construction, repairs and maintenance of the several works under the Department.

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## RAILWAYS.

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The present Report deals with the undermentioned Railways of the Dominion either directly controlled by the Federal Government, or towards the construction of which subsidies have been granted or authorized.

*Controlled:*

The Intercolonial.

The Prince Edward Island.

*Subsidized, or with subsidy authorized:*

The Canadian Pacific.

---

NOTE.—It should be observed that while the reports furnished by the Superintending Officers deal with the fiscal year only, the General Report of the Minister applies up to the end of December, 1883.

The Canada Central (Pembroke to Callander), in the Province of Ontario.		
A Railway from Gravenhurst to Callander	"	"
The Quebec and Lake St. John,	"	Quebec.
A Railway from Rivière du Loup or Rivière Ouelle to Edmundston	"	Quebec and New Brunswick.
The Great American and European Short Line	"	Nova Scotia.
The Chignecto Marine Transport Railway	"	Nova Scotia.
The Baie des Chaleurs Railway	"	Quebec.
The Caraquet Railway	"	New Brunswick.
The Gatineau Valley Railway	"	Quebec.
The International Railway	"	Quebec.
The Northern and Western Railway	"	New Brunswick.
The Montreal and Western Railway	"	Quebec.
The Napanee, Tamworth and Quebec	"	Quebec and On- tario.
A Railway from the Intercolonial at Petitecodiac to Havelock Corner	"	New Brunswick.

#### CANADIAN PACIFIC RAILWAY.

The line of the Canadian Pacific Railway, as adopted by the Government, extends from Callander, Lake Nipissing, to Port Moody, British Columbia.

Under the terms of the contract entered into in 1881 with the Canadian Pacific Railway Company, the Government have undertaken to construct the line between Port Arthur (formerly Prince Arthur's Landing) on Lake Superior, and Red River; also between Savona's Ferry, at the foot of Lake Kamloops, and Port Moody, in British Columbia. The Company, on their part, have undertaken to construct, within a specified time, the line between Callander Station, their eastern terminus at the east end of Lake Nipissing, and Port Arthur; also, between Red River and Savona's Ferry; the whole line, upon completion, to be the property of the Company, and to be maintained and operated by them thenceforward.

*Trunk Line :—*

The Trunk Line of the Company has been extended, by the purchase of other lines, eastward from Callander to Montreal, and the distances given in the following table are calculated on a route passing through the city of Winnipeg and the Kicking Horse Pass.

	Miles.
Montreal to Ottawa .....	120
Ottawa to Pembroke.....	105
Pembroke to Callander.....	120
Callander to Port Arthur.....	650

Port Arthur to Winnipeg.....	428½
Winnipeg to Savona's Ferry (approximate) .....	1,250
Savona's Ferry to Port Moody .....	215
<hr/>	
Total (approximate).....	2,888½

In addition to the above, the Company have branch lines, constructed and under construction, aggregating 395 miles.

The portion of the road between Pembroke and Callander, 120 miles, was formerly part of the Canada Central Railway, and was subsidized by the Dominion Government to the extent of \$12,000 a mile. It was completed during the fiscal year.

#### PROGRESS OF WORKS UNDER GOVERNMENT

Of the section between Port Arthur and Winnipeg, the portion between Winnipeg and Rat Portage, together with the Pembina Branch, from St. Boniface (opposite Winnipeg) to Emerson, having already been handed over to the Company, there remained to be constructed by the Government at the beginning of the past fiscal year the portion between Rat Portage and Port Arthur, 297 miles.

In May, 1883, this portion was in such a state of forwardness as to admit of the running of regular trains, and it being highly desirable to open it up for traffic without delay, while at the same time avoiding the danger and difficulties which would be consequent upon an attempt to carry on works of construction and operation through other than one control, arrangements were sanctioned under which the contractors for the subsection between Rat Portage and Eagle River were relieved of the remaining portion of the work thereon, the Canadian Pacific Railway Company undertaking, for a bulk sum, not only to complete this subsection, but also to execute the minor work remaining to be done on the whole section between Port Arthur and Red River. They have since steadily progressed with the work, at the same time conducting the regular traffic of the road.

The only portion, therefore, remaining to be constructed by the Government is the section in British Columbia, between Savona's Ferry and Port Moody, a distance of 215 miles. Work under the five several contracts into which this section is divided has been carried on expeditiously. On the portion from Port Moody to Emory's Bar, a distance of 86 miles, the track is laid for 70 miles, and the grading is sufficiently advanced to admit of the track being laid throughout. The whole work comprised in the contract will, it is expected, be completed by July next. On the adjoining division, 29 miles, up to Boston Bar, the work is practically completed, the track being laid and ballasted throughout. Eastward from Boston Bar to Lytton, 29 miles, the structures, with the exception of the iron bridge over the Fraser River, are nearly finished. The track is laid for about 23 miles, and the grading is rapidly

approaching completion. The masonry work for the Fraser River bridge is in progress, and the superstructure, built in England, has arrived.

From Lytton to Spence's Bridge, (Junction Flat) 29 miles, the grading is nearly completed, and from Spence's Bridge to Savona's Ferry, 42 miles, the grading is in a forward state, and, together with the bridging, will probably be completed ready to receive the track by September next, by which date it is expected that the track will be laid over the whole distance from Savona's Ferry to Port Moody.

#### PROGRESS OF WORKS UNDER THE CANADIAN PACIFIC RAILWAY COMPANY.

The works to be executed by the Company under their contract are comprised in the following sections :

	Miles.
From Callander to Port Arthur (Eastern Section).....	650
From Winnipeg to Savona's ferry (Central Section).....	1,250
Total .....	1,900

*Eastern Section (Callander to Port Arthur).*—The various location surveys undertaken on this section have been now connected, and the results shown are favourable in respect of both gradients and curvature.

The location of the road for a total distance of 130 miles west from Callander has been approved of by Orders in Council, the last of which is dated the 6th of December, 1883. and for a distance of 68 miles east from Port Arthur, the last Order being dated the 29th of March, 1883.

For a distance of 100 miles west from Callander, to a point about 4 miles beyond Sudbury Junction the track is laid, and the line is sufficiently completed to admit of the running of regular trains.

It may be here observed that starting from Sudbury Junction, the Company have a branch line, 93 miles long, under construction to Algoma Mills, Lake Huron, upon which such rapid progress has been made that it is expected to be in condition for traffic by the opening of navigation in May, 1884. A special line of steamers owned by the Company, will run from Algoma Mills to Port Arthur, connecting with the train service. A through Canadian route to Winnipeg and the Rocky Mountains, will thus be afforded from that date.

Upon the main line west from Sudbury Junction, construction works are in active progress for a distance of about 15 miles.

From Port Arthur eastward to the River Nepigon, a distance of about 67 miles, the track has been laid, and it will, it is expected, be laid for a further distance of 35 miles during the present winter.

For a distance of about 100 miles east of the River Nepigon occurs some of the heaviest rock cutting of the section. The work is in progress.

*Central Section, (Red River to Savona's Ferry, Kamloops).—*As was shown in the report presented last year, the Company, up to the end of January, 1883, had completed 581 miles of their main line from Winnipeg westwards. During the past season, the works have made such progress that, up to the present date, the track is laid as far as the summit of the Rocky Mountains, a distance of 960 miles.

The location of the road for a total distance of 964 miles west from Winnipeg, has been approved of by a series of Orders in Council, the last of which was dated the 6th of December, 1883.

The obtaining of a route through the Rocky Mountains by a pass other than the Yellow Head, that contemplated in the original location, has long been an object with the Company, and they have selected a line *vid* the Kicking Horse Pass; this route, they consider, admitting of the construction of a road which will compare favourably with existing lines to the Pacific Coast, while, in comparison with the Yellow Head route, it will shorten the distance to Port Moody by at least 100 miles. The maximum gradient it will be found necessary to employ is 116 feet to the mile.

The Company have furnished copies of reports upon this subject, made in November last by their engineers. These have been printed in an appendix attached hereto, and will be found to give information as to the engineering features of the route. (*See app. 9, p. 152.*)

The possible selection of a pass other than the Yellow-Head, on the part of the Company, was provided for and authorized by an Act passed in 1882, a special clause of which reads as follows:—

“The Canadian Pacific Railway Company may, subject to the approval of the Governor in Council, lay out and locate their main line of railway from Selkirk to the junction with the western section by way of some pass other than the Yellow Head Pass, provided that the pass be not less than one hundred miles from the boundary between Canada and the United States of America.”

*Subsidy.*—Under the ninth section of the Company's contract it was provided as follows:—“Upon the construction of any portion of the railway hereby contracted for, not less than 20 miles in length, and the completion thereof so as to admit of the running of regular trains thereon, together with such equipment thereof as shall be required for the traffic thereon, the Government shall pay and grant to the Company the money and land subsidies applicable thereto.” Under a series of Orders in Council, based upon certificates of the Chief Engineer, portions of the said subsidies have

from time to time since the commencement of the work, been paid to the Company upon such completion, the cash subsidy amounting, up to the end of December, 1883, to \$12,289,211, being for 954 miles on the central section and 167 miles on the eastern, or a total of 1,121 miles.

The land subsidy amounts to 13,755,763 acres, less one-fifth, or 2,751,152 acres, which is retained by the Government pending the completion of the contract, making the total acreage handed over to the Company, 11,004,611 acres.

*Tariff.*—Under an Order in Council dated the 28th of May, 1883, approval was given to a tariff of charges for freight and passengers on the Canadian Pacific Railway westwards from Port Arthur, together with the branches connected therewith.

The report of the Government Chief Engineer, made after recent personal inspection of the whole road, shows that the line has been well and substantially built the larger streams being spanned by strong iron bridges, resting upon abutments and piers of massive masonry, and the whole work being carried out in a manner fully up to the requirements of the contract.

The rate at which the works have progressed has been so greatly in excess of what had been anticipated, that it may be confidently expected that the whole line will be opened for traffic some five years prior to the date called for by the contract, the 1st of May, 1891. To secure so desirable a result the Government has endeavoured, in all practicable ways, to strengthen, the Company's hands, so that no unnecessary check may occur to the vigour which has hitherto characterized their operations.

#### BRANCH LINES.

In addition to the subsidy for their main line, the Company have, under their contract, the right to receive a grant, in so far as it is vested in the Government, of the land required for road-bed, stations, etc., in the construction of branch lines.

The Company have had under construction the following branches:—

*The Algoma Branch.*—This line, referred to in last year's report as the Sault Ste. Marie branch, is 93 miles in length, and extends from Sudbury Junction, a point on the main line east of Callander, to Algoma Mills, Lake Huron. As above stated, it is well advanced towards completion, and will, it is expected, be open for traffic in May, 1884.

*The Selkirk Branch.*—This line, 22 miles in length, extends from Winnipeg, along the west side of Red River, to West Selkirk. It was completed during the past season, and is now under traffic.

*Pembina Mountain or South Western Branch, (164 miles).*—The Company have constructed and now operate this branch for a distance of 102½ miles, namely from Winnipeg to Manitoba City. Beyond this, the line is being located.

*Emerson Branch.*—This line, 15 miles in length, extends from Pembina Mountain Junction to the town of Emerson : it is nearly completed and ready for traffic. The Corporation of Emerson, aided by a subsidy of \$50,000 from the Dominion Government, authorized by Parliament, are building a combined railway and ordinary passenger bridge over the Red River.

*Gretna Branch.*—This line, 14 miles in length, from Pembina Mountain Junction to Gretna, on the International Boundary line, about 20 miles west of Emerson, is completed and under traffic.

In addition to the above the Company own various branch lines, acquired either by transfer or purchase, a list of which appears in the report of the Chief Engineer, appended hereto. (app. 3, p. 7 ; and app. 14, p. 159).

#### GOVERNMENT RAILWAYS IN OPERATION.

The several lines operated and maintained by the Government during the past fiscal year were :—

	Miles.
The Intercolonial.....	840
Prince Edward Island.....	199
Windsor Branch (maintained only).....	32
Total mileage.....	1,071

The Federal Revenue Accounts for 1882-3, show the following as the financial position of these roads for the past fiscal year :—

—	Expenditure.	Earnings.	Profit.	Loss.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Intercolonial.....	2,360,373 27	2,370,921 10	10,547 83	
Prince Edward Island.....	252,808 41	146,170 42		106,637 99
Windsor Branch (earnings, one third of entire receipts).....	23,103 93	24,113 89	1,009 96	
	2,636,285 61	2,541,205 41	11,557 79	106,637 99
				11,557 79
Loss on working.....				95,080 20
Less disbursements in connection with the accident on the Prince Edward Island Railway in 10.....				9,941 45
Net Loss.....				85,138 75

## INTERCOLONIAL RAILWAY.

## LENGTH OF LINE.

*Ocean Mail Line.*

	Miles.
Point Lévis to Rivière du Loup.....	126
Rivière du Loup to Moncton.....	374
Moncton to Painsec.....	8
Painsec to Truro.....	118
Truro to Halifax.....	62
	— 688

*Extensions.*

Moncton to St. John.....	89
Painsec to Shediac.....	11
Truro to Pictou.....	52
	— 152
	840
	==

*Local Branches.*

Rimouski to Wharf.....	2
Newcastle, N. B., to Deep Water Wharf.....	2
Dorchester to Shipping Wharf.....	1
Sackville to Shipping Wharf.....	0.5
Stewiacke to Wharf.....	1
	— 6.5

The various works for the improvement of the ocean terminus at Halifax, comprising the provision of more extensive wharf and warehouse accommodation, arrangements for the delivery of coal direct into the ship's bunkers, and the building of a large grain elevator, are now all completed, affording accommodation for steamers of the largest size.

At St. John, the requirements of the traffic rendered it necessary to provide further warehouse and coaling accommodation, and the facilities for the handling of freight are much improved.

The increase of the traffic on the road made it necessary to add to the rolling stock.

The permanent way and structures have been kept in a state of thorough efficiency. The repairs and renewals have included the laying of 31 miles

of new rails in the main track, with 8 miles of sidings, the erection of 120 miles of snow and ordinary fencing, the building of six stations and five freight houses, a large wharf at Dorchester, and a new steel bridge over the River Laplanche. In addition to the above, the various existing buildings along the line have received extensive repairs, and the improvement of the water supply has been a feature of the year's work.

The snow-fall last winter was heavy, entailing an expenditure considerably in excess of that required in the previous year. Notwithstanding the severity of the season, however, the counteracting means at disposal were sufficiently complete to enable the traffic of the line to be continued practically without impediment.

From the comparative statistical tables furnished by the proper officers, which will be found in appendices to the present report, it will be seen that a very considerable increase has taken place in the quantity of freight carried.

*Capital Account.*—The total cost of the road and equipment chargeable to capital account at the close of the fiscal year 1881–82 was..... \$39,560,021 23

The expenditure charged to capital account for the year ended 30th June, 1883, is as follows:—

Halifax extension .....	\$257,824 73
Deep water terminus, St. John.....	201,312 18
Repairs and improvements, Rivière du Loup section.....	6,805 86
For the completion of the Intercolonial Railway.....	40,124 59
For additional rolling stock.....	628,244 39
The St. Charles Branch.....	482,197 09
The Dartmouth Branch.....	124 12
	<hr/>
	1,616,632 96

Making the total cost up to the 30th of June 1883...\$41,176,654 19

*Revenue Account.*—A comparison of the revenue with that of the past three years shows a continual increase in the earnings of the road.

The gross earnings for the year were.....	\$2,370,921 10
The working expenses were.....	2,360,373 27
	<hr/>
Net earnings.....	\$ 10,547 83

The gross earnings exceed those of the previous year by..... 291,658 44

The value of the stores in hand at the [end of the past fiscal year, including steel rails and fuel, was..... 567,739 27

The engine mileage compared with that of last year was:—

	Miles.
1882-83.....	4,406,189
1881-82.....	3,900,850
Increase.....	505,339

The car mileage compared with that of last year was:—

1882-83.....	41,526,553
1881-82.....	37,489,376
Increase.....	4,037,177

The train mileage compared with that of last year was:—

1882-83.....	3,615,192
1881-82.....	3,195,566
Increase.....	419,626

The working expenses per mile run by engines were:—

	Cents.
1882-83.....	53.57
1881-82.....	53.05
Increase.....	.52

The working expenses per mile run by train were:—

1882-83.....	65.29
1881-82.....	64.77
Increase.....	.52

The gross tonnage carried was:—

	Tons.
1882-83.....	970,961
1881-82.....	838,956
Increase.....	132,005

The total number of passengers carried was:—

1882-83.....	878,600
1881-82.....	779,994
Increase.....	98,606

#### ST. CHARLES BRANCH.

The construction of this branch, which extends from St. Charles Station on the Intercolonial Railway, to Point Lévis, a distance of about 18 miles, has been proceeded with, and is far advanced towards completion.

## WINDSOR BRANCH.

The Windsor and Annapolis Railway Company are permitted to continue the operation of this line, the arrangement being that the Company pay all charges in connection with the working, two-thirds of the gross receipts being allowed them for such purpose, the Government taking the remaining one-third and assuming all cost of maintenance.

The earnings and expenditure for the year ended the 30th of June, 1883, were as follows:—

Gross earnings accruing to the Government.....	\$ 24,113 89
Expenditure for maintenance of way and works.....	23,103 93
Balance.....	\$1,009 96

Earnings in comparison with those of the previous year:—

1882-1883.....	\$24,113 89
1881-1882.....	21,053 19
Increase.....	\$3,060 70

Expenditure in comparison with that of the previous year:—

1882-1883.....	\$23,103 93
1881-1882.....	13,099 55
Increase.....	\$ 10,004 38

The increased expenditure this year has been due to the erection of a new station and freight house at Windsor Junction, the relaying with steel rails of a portion of the road, and other improvements to buildings and bridges, together with additional siding accomodation.

The road has been maintained in good working order.

## PICTOU BRANCH.

Subject to approval by Parliament and by the Provincial Legislature of Nova Scotia, arrangements have been made under which the Dominion will retain the Pictou Branch, and will acquire the Eastern Extension Railway, operating the same as a portion of the Intercolonial Railway.

## DARTMOUTH BRANCH.

At the last Session of Parliament the sum of \$110,000 was voted for the construction of a branch line from the Intercolonial Railway to Dartmouth, opposite Halifax, the grant being conditional on the Corporation of that place undertaking to pay to the Government \$4,000 a year for twenty years, or so much of that amount

as may be required, in addition to the net revenue, to pay interest at the rate of four per cent. on the sum expended.

On the 12th of June, 1883, an agreement was duly entered into with the Corporation whereby they bound themselves to fulfil the above condition. Negotiations are in progress for the purchase of the right of way.

#### DALHOUSIE BRANCH.

At its last Session, Parliament voted the sum of \$60,000 for the construction of a branch line from the Intercolonial Railway to Dalhousie, on the Baie des Chaleurs, a distance of about 6 miles. The grading is practically completed, and the track is laid for about 3 miles; the station buildings have been erected, and it is anticipated that the line will be finished early next season. (app. 4, p. 14).

#### PRINCE EDWARD ISLAND RAILWAY.

##### LENGTH OF LINE.

	Miles.
Tignish to Royalty Junction.....	113½
Royalty Junction to Mount Stewart.....	20
Mount Stewart to Georgetown.....	21
	<hr/>
	154½

##### EXTENSIONS.

Royalty Junction to Charlottetown.....	5
Mount Stewart to Souris.....	39
	<hr/>
	44
	<hr/>
	198½

*Capital Account.*—The total cost of the road and equipment chargeable to capital account at the close of the fiscal year 1881-82 was.....\$3,466,990 60

The expenditure charged to this account for the year ended the 30th of June, 1883 was.....56,702 02

Total expenditure on capital account to the 30th of June 1883.....\$3,523,692 62

*Revenue account.*—The working expenses and receipts for the year ended the 30th of June, 1883, were:

Gross expenses.....	252,808 41
Gross earnings.....	146,170 42
	<hr/>
Excess of expenditure over earnings.....	106,637 99

The gross earnings, compared with those of the previous year, were :—

1882-1883.....	\$146,170 42
1881-1882.....	137,267 54
Increase.....	\$8,902 88

The gross expenditure, compared with that of the previous year, was :—

1882-1883.....	\$252,808 41
1881-1882.....	228,259 97
Increase.....	\$24,548 44

The engine mileage was :—

	Miles.
1881-1882.....	317,194
1882-1883.....	313,760
Decrease.....	3,434

The car mileage was :—

	Miles.
1881-1882.....	1,117,989
1882-1883.....	1,237,103
Increase .....	119,114

The expenditure includes a sum of \$9,941.45 paid in connection with the accident on this road which occurred in August 1880, the erection of a new station at Miscouche, the provision of additional sidings and the purchase of land for snow fences.

The road, and the buildings and structures in connection with it, have been maintained in good condition, and the rolling stock is in an efficient state of repair.

#### CAPE TRAVERSE BRANCH.

At the last session of Parliament the sum of \$188,200 was granted for the construction of a branch, connecting Cape Traverse with the Prince Edward Island Railway at County Line Station, a distance of about 12 miles.

The grading is practically completed, and the necessary wharf at Cape Traverse is being constructed ; the road is expected to be in running order in the summer of 1884. (app. 4, p. 14).

#### SUBSIDIZED LINES.

Under an Act, 45 Vic., cap. 14, 1882, the grant of certain subsidies was authorized upon specified conditions as to construction, payments, running powers, and traffic arrangements, towards the construction of the following lines of railway :—

For a railway from Gravenhurst to Callander, both in the Province of Ontario, a subsidy not exceeding \$6,000 per mile, nor exceeding in the whole.....	\$660,000
For a railway from St. Raymond to Lake St. John, both in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	384,000
For a railway from a point on the Intercolonial Railway, at Rivière du Loup or Rivière Ouelle, in the Province of Quebec, or between them, to Edmundston in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	240,000
For a railway from Oxford to New Glasgow, both in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	224,000
Total.....	<u>\$1,508,000</u>

The Act further provided that the grants should be made "to such Companies as shall be approved by the Governor in Council, as having established to his satisfaction their ability to complete the said railways respectively, within a reasonable time, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made by the Company with the Government, and which the Government is empowered to make."

Further, by an Act passed last Session, 46 Vic., cap. 25, the grant of subsidies was authorized as follows:—

To the Baie des Chaleurs Railway Company, for 100 miles of their railway, from Metapediac, on the Intercolonial Railway, to Paspebiac, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	\$320,000
To the Caraquet Railway Company, for 36 miles of their railway, from a point near Bathurst to Caraquet, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.	115,200
To the Gatineau Valley Railway Company, for the first 50-mile section of their railway, from Hull Station, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	160,000

To the Great American and European Short Line Railway Company, for 80 miles of their railway, from Canso to Louisburg or Sydney, in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	256,000
To the International Railway Company, for 49 miles of their railway, from Sherbrooke, in the Province of Quebec, to the International Boundary Line, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	156,800
(In connection with the extension of this road through Maine, to connect with New Brunswick, at or near Vanceborough or south of that point).	
To the Northern and Western Railway Company, for 32 miles of their railway, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy Village, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	102,400
To the Montreal and Western Railway Company, for the first 50-mile section of their railway, out of St. Jerome, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	160,000
To the Napanee, Tamworth and Quebec Railway Company, for 28 miles of their railway, from Napanee to Tamworth, in the Province of Ontario, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	89,600
To the Quebec and Lake St. John Railway Company, for 25 miles of their railway, from St. Raymond to Lake St. John, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	80,000
(In addition to the subsidy granted by the Act 45 Vic., cap. 14).	
For a railway from the Intercolonial Railway at Petitcodiac to Havelock Corner, in the Province of New Brunswick, 12 miles, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole.....	38,400

For a railway from Gravenhurst to Callander, 110 miles,  
 a subsidy not exceeding \$6,000 per mile, nor exceed-  
 ing in the whole..... 660,000  
 (In addition to the subsidy granted by the Act 45  
 Vic., cap. 14).

In relation to the foregoing and to the Act of the previous Session, it was provided as follows:—

“The nine subsidies first mentioned to be granted to the Companies hereinbefore named respectively; and the two subsidies last mentioned to be granted to such Companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to complete the said railways respectively; and all the eleven lines above mentioned, and also all the lines of railway in respect of which it is provided by the Act forty-fifth Victoria, chapter fourteen, that subsidies may be granted, shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years from and after the passing of this Act, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made by each Company with the Government, and which the Government is empowered to make.”

*Quebec and Lake St. John Railway Co.*—An agreement was duly entered into on the 4th of September, 1883, under which this line is to be completed by the 25th of May, 1887.

Up to the 31st of December, 1883, the subsidy has been paid for the first 10-mile section, north of St. Raymond, namely \$32,000.

*Great American and European Short Line Railway Co.*—A contract was entered into with this Company on the 28th of July, 1882, for the construction of their line between Oxford and New Glasgow.

*International Railway Company.*—The object of the subsidy to this Company was the enabling them to complete their road with steel rails to the international boundary. The Company entered into contract on the 20th of July, 1883.

The work has been executed, and the subsidy contemplated by the Act has been duly paid upon a distance of 45 miles, namely \$144,000, up to the 31st of December, 1883.

*The Napanee, Tamworth and Quebec Railway Company.*—On the 31st of December, 1883, the necessary approval having been given by an Order in Council of the 21st of that month, an agreement was entered into with the Company, under which the line between Napanee and Tamworth is to be completed by the 31st of December, 1884. The works are in progress.

*New Brunswick Railway Company.*—On the 28th of June last, an Order in Council was passed, approving of the descriptions and specifications submitted, and authorizing entry into agreement accordingly. The Company are still engaged in the work of survey, and no agreement has yet been signed.

*St. John Bridge and Railway Extension Company.*—By an Act passed last session 46 Vic., ch. 26, authority was given for the advance to the above named Company of a sum not exceeding \$500,000, to aid them in the construction of their proposed bridge over the St. John River, security being taken for the said advance in the shape of a mortgage on the Company's property,

The plans and specifications of the bridge having been approved of by an Order in Council, a mortgage was executed on the 10th of December, 1883, and the Company, up to the 31st of December, 1883, have received the sum of \$34,000, representing eighty per cent of the expenditure already made in connection with the work.

*Vancouver Island Railway.*—Under the authority of Orders in Council passed in June, 1883, the Hon. Sir Alexander Campbell, during the past summer, has visited British Columbia, with a view to the settlement of matters in abeyance between the Provincial and Dominion Governments, and arrangements were provisionally entered into by him in respect of the building of a line of railway between Esquimalt and Nanaimo by a Company, to be subsidized by the Dominion Government.

The arrangements in question are conditional upon approval being accorded by the Legislature of the Province of British Columbia, and by the Parliament of Canada. Subject to such approval, their adoption has been sanctioned by an Order in Council of the 27th of September, 1883.

*Chignecto Marine Transport Railway Company.*—Under the Act 45 Vic., ch. 55, authority was given to the Government to enter into an agreement with this Company whereby a subsidy of \$150,000 a year, for a period of 25 years, should be paid to them in aid of the construction of a ship railway across the Isthmus of Chignecto, between Baie Verte, in the Gulf of St. Lawrence, and the Bay of Fundy. No agreement has yet been made with the Company.

## CANALS.

The canal systems of the Dominion, under Government control, in connection with lakes and navigable rivers, are as follows :—

1. The River St. Lawrence and Lakes.
2. The River Ottawa.
3. The Rideau Navigation, from Ottawa to Kingston.
4. The Trent Navigation.
5. The River Richelieu, from the St. Lawrence to Lake Champlain.
6. St. Peter's Canal, Bras d'or Lake, Nova Scotia.

The collection of the revenue derivable from the canals of the Dominion being in the hands of the Department of Inland Revenue, reference must be had to the annual report of that Department for all information in relation to the subject. The report in question further deals with general matters relating to the movement of freight on these canals.

The following table, however, shows the revenue accrued from the operation of the several canals during the past fiscal year, 1882-83, as ascertained from the Department of Inland Revenue.

Name of Canal.	Tolls.	Hydraulic Rents.	Total Revenue.
Welland.....	\$155,062	\$10,446	\$165,508
St. Lawrence.....	91,675	18,049	109,72
Chambly .....	23,524	130	23,654
Ottawa .....	62,132	22	62,1 5
Rideau .....	6,474	859	7,333
Burlington Bay.....	2,827	130	2,957
St. Peter's.....	1,229	.....	1,229
Newcastle District.....	329	.....	329
Fort Francis.....	.....	20	20
	343,252	29,656	372,90

## RIVER ST. LAWRENCE AND LAKES.

The River St. Lawrence, with the system of canals established on its course above Montreal, and the Lakes Ontario, Erie, St. Clair, Huron and Superior, with connecting canals, afford a course of water communication extending from the Straits of Belle-Ile to Duluth, at the head of Lake Superior, a distance of 2,384 statute miles.

The difference in level between Lake Superior and the point on the St. Lawrence, near to Three Rivers, where tidal influence ceases, is about 600 feet.

The Dominion Canals, constructed between Montreal and Lake Erie, are the Lachine, Beauharnois, Cornwall, Farran's Point, Rapide Plat, Galops and Welland. Their aggregate length is  $70\frac{1}{2}$  miles; total lockage (or height directly overcome by locks) is,  $533\frac{1}{2}$  feet; number of locks, 53.

Communication between Lakes Huron and Superior is obtained by means of the Sault Ste. Marie Canal, situated on the United States side of the channel.

The canal is a little over a mile in length, and has one lock 515 feet long, 80 feet wide, with 16 feet of water on the sills, and a lift of about 18 feet.

A statement of distances, and of sections of navigable waters, from the Straits of Belle-Ile to Duluth, at the head of Lake Superior, is given in the appendices. (App. No. 13).

#### ST. LAWRENCE CANALS.

As was observed in the report presented last year, in 1841, at the time when the system of canals between Montreal and Lake Ontario was designed, it was in contemplation to afford a depth, at all stages of the St. Lawrence waters, of 9 feet, a depth seemingly, from the data then possessed, secured through the works proposed. The River St. Lawrence is, however, from various reasons, subject to fluctuations whose extent it was impossible at the time when these canals were originally constructed, to arrive at with precision, and the continued observations and experience of subsequent years have shown that while the intermediate river reaches, at all times, afford ample depth for vessels of nine feet draught, in the canals themselves, at certain periods of low water, this depth cannot be maintained, the bottom not having been sunk to a sufficiently low level.

The following list shows the least depth of water on the sills of the locks of the St. Lawrence Canals at a time of exceptionally low water, in the year 1872 (*vide* Report of Chief Engineer, 1880):

Williamsburgh Canals—	Feet.	Inches.
Rapide Plat, guard lock .....	6	7
“ “ lower entrance .....	7	0
Galops, guard lock .....	8	1
Iroquois, lower entrance .....	9	3
Farran's Point .....	7	9
Cornwall, guard lock .....	8	3
“ lower entrance .....	9	0
Beauharnois .....	10	10
“ lower entrance .....	9	2

Further works of enlargement have been commenced on the Cornwall, the Rapide Plat and the Galops Canals, the scale adopted being that of the general enlargement scheme, as now in use on the Welland and Lachine canals. Reference to these works will be made under their respective headings.

#### LACHINE CANAL.

	Old Line.	New Line.
Length of canal.....	8½ statute miles.	8½ statute miles.
Number of locks.....	5	5
Dimensions of locks.....	200 feet by 45 feet.	270 feet by 45 feet.
Total rise or lockage.....	44¾ feet.	44¾ feet.
Depth of water { at two locks 16 "      at three locks. 9 "		18 "      14 "
Mean width of new canal.....	150 "	

This canal extends from the City of Montreal to the Village of Lachine, overcoming the St. Louis Rapids, the first series of rapids which bars the ascent of the River St. Lawrence. They are 936 miles distant from the Straits of Belle-Ile.

The canal now consists of one channel, with two distinct systems of locks, the old and the enlarged.

The canal was closed on the 1st December, 1882, and opened on the 1st of May, 1883.

No accident or interruption to navigation has occurred during the year, and the works have been maintained in a state of thorough efficiency. (App. 5, p. 81.)

#### NEW WORKS.

The enlargement of the entrance channel and harbour at Lachine, the principal work now remaining to be done, has made steady progress, and it is expected that a channel 200 feet wide and of the depth required for the passage of vessels of 14 feet draught will be completed early in the summer of 1884.

The works for the construction of the two new basins at St. Gabriel, for which an appropriation has been voted, have been placed under contract and are in progress.

The extension of the landing pier at Lachine, rendered necessary by the construction of the new entrance to the canal has been completed.

#### BEAUHARNOIS CANAL.

Length of canal.....	11½ statute miles.
Number of locks.....	9
Dimensions of locks.....	200 feet by 45 feet.

Total rise or lockage .....	82½ feet.
Depth of water on sills.....	9 “
Breadth of canal on bottom.....	80 “
Breadth of canal at water surface ...	120 “

This canal commences on the south side of the St. Lawrence, 15½ miles from the head of the Lachine Canal. It connects Lakes St. Louis and St. Francis, and passes the three rapids known respectively as the Cascades, the Cedars, and the Coteau.

The canal was closed by ice on the 30th of November, 1882, and was re-opened for traffic on the 30th of April, 1883.

On the 25th of August, 1882, an accident occurred at lock No. 13, the steamer “Prince Arthur” having run into and carried away three of the gates, entailing considerable damage through the consequent overflow of water from the reach above the lock. Traffic was interrupted for forty-eight hours.

The repairs and renewals effected during the year have been of considerable extent; new bridges have been constructed at Valleyfield, and some of the raceways have been repaired. (App. 5, p. 84).

#### CORNWALL CANAL.

Length of canal.....	11½ statute miles.
Number of locks. ....	7
Dimensions of locks.....	200 feet by 55 feet.
Total rise or lockage.....	48 feet.
Depth of water on sills.....	9 “
Breadth of canal at bottom.....	100 “
Breadth of canal at water surface .....	150 “

From the head of the Beauharnois to the foot of the Cornwall Canal, there is a navigable stretch through Lake St. Francis of 32¾ miles.

The Cornwall Canal extends past the Long Sault Rapids.

This canal was closed on December 6th, 1882, and re-opened on the 28th of April, 1883.

All necessary repairs were executed. (App. 5, p. 97).

#### NEW WORKS.

As was stated last year, certain works of enlargement at the lower entrance, comprising the formation of an entrance channel, and the construction of two locks (taking the place of three on the old line), together with the excavation of a basin between the locks, have been completed and brought into use, leaving four locks and

the prison of the canal to be hereafter dealt with. The dimensions of the new locks are those of the general enlargement scheme, namely: length, 270 feet; breadth 45 feet; depth of water 14 feet. The basin between these two locks is 825 feet long.

Further works, comprising the deepening of the channel at the upper end, the construction of a lock and a large supply weir will be shortly placed under contract.

The proposed channel will be sunk to such depth as to admit of the passage of vessels of 14 feet draught.

#### WILLIAMSBURGH CANALS.

The Farran's Point, Rapide Plat and Galops Canals are collectively known as the Williamsburgh Canals.

These canals were closed on the 11th December, 1882, and re-opened on the 1st May, 1883.

Navigation was carried on throughout the season without interruption. (App. 5, p. 98).

#### FARRAN'S POINT CANAL.

Length of canal.....	$\frac{3}{4}$ mile.
Number of locks .....	1
Dimensions of locks .....	200 feet by 45 feet.
Total rise or lockage .....	4 "
Depth of water on sills .....	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal on water surface .....	90 "

From the head of the Cornwall Canal to the foot of Farran's Point Canal, the distance on the River St. Lawrence is 5 miles. This latter canal enables vessels ascending the river to avoid the Farran's Point Rapid. Descending vessels run the rapids with ease and safety.

The ordinary repairs were executed.

#### RAPIDE PLAT CANAL.

Length of canal.....	4 miles.
Number of locks .....	2
Dimensions of locks.....	200 feet by 45 feet.
Total rise, or lockage.....	11 $\frac{1}{2}$ feet.
Depth of water on sills .....	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal at surface of water.....	90 "

From the head of Farran's Point Canal to the foot of Rapide Plat Canal there is a navigable stretch of  $10\frac{1}{2}$  miles. This canal was formed to enable vessels ascending the river to pass the rapid at that place. Descending vessels run the rapid safely.

The canal has been maintained in good repair.

#### NEW WORKS.

Steps have been taken towards the enlargement of this canal in conformity with the proportions of the general scheme. Plans and specifications have been prepared for the works to be immediately placed under contract. These consist of the enlargement of the channel way above and for some distance below the present guard lock at the head of the canal, the construction of a new lock, and a supply weir in connection with the old lock. The bottom of the channel will be excavated to an extent sufficient to afford a navigable depth of 14 feet.

#### GALOPS CANAL.

Length of canal.....	$7\frac{5}{8}$ miles.
Number of locks.....	3
Dimensions of locks.....	200 feet by 45 feet.
Total rise or lockage.....	$15\frac{3}{4}$ feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal at surface of water.....	90 "

From the head of Rapide Plat Canal to Iroquois, at the foot of the Galops Canal, the St. Lawrence is navigable for  $4\frac{1}{2}$  miles. This canal enables vessels to overcome the rapids at Pointe aux Iroquois, Pointe Cardinal and the Galops.

The repairs have been of an ordinary character.

From a statement furnished by the Superintendent of these canals and attached to his report (p. 100) it appears that the minimum depth of water reached during the past fiscal year was on the Rapide Plat Canal in February, 1883, when, at the head or guard lock of the canal, there was only 6 feet of water. The lowest point at which the water stood on this canal during the season of navigation was in May, 1883, when the height of water at the guard lock was 8 feet, 4 inches.

#### NEW WORKS.

It is intended to proceed with the improvement and deepening of the upper entrance of this canal, in order that better access may be afforded to vessels. The work to be immediately placed under contract is the excavation and deepening of a channel way at the upper end, leading to deep water, so as to give a depth available for vessels of 14 feet draught.

## GALOPS RAPIDS IMPROVEMENT.

The Galops Rapids, the most shallow of the three passed by the Galops Canal, are being improved for purposes of navigation by certain works of submarine blasting and dredging.

These works, commenced in 1830, consist of the excavation of a straight channel through the rapids, 3,300 feet long, 200 feet wide and of such depth as to afford safe passage at low water to vessels of 14 feet draught.

The principal shoals to be excavated are those known as the "Island Shoal" and the "Lower Bar." Very satisfactory progress has been made, and the Island Shoal may be said to be now practically removed, the work of dredging out some of the already blasted material being all remaining to be done. The work of drilling and blasting at the "Lower Bar" is now in progress. (App. 5, p. 126).

## WELLAND CANAL.

MAIN LINE, FROM PORT DALHOUSIE, LAKE ONTARIO, TO PORT COLBORNE,  
LAKE ERIE.

By the works of enlargement, passage is now afforded, at all stages of the Lake Erie level, to vessels drawing 12 feet of water, excepting at the point where the canal is carried by an aqueduct over the Chippewa River. Here, the necessity of continuing to use the old work, pending the building of the enlarged aqueduct, renders care imperative, and the draught of vessels using their own motive power should not, at this point, exceed  $11\frac{1}{2}$  feet; the draught of vessels in tow, however, may be 12 feet. At periods of low water in Lake Erie, and especially during a continuance of strong easterly winds, the draught of all vessels, to enable them to pass freely through the present aqueduct, should not exceed  $11\frac{1}{2}$  feet.

	OLD LINE.	ENLARGED OR NEW LINE.
Length of canal.....	27 $\frac{1}{5}$ miles.	26 $\frac{3}{4}$ miles.
Pairs of guard gates, (formerly 3)...		2
Number of locks { lift.....	26	} lift 25 guard 1
{ guard.....	1	
Dimensions..... {	2 locks 200 x 45	} 270 feet x 45 feet.
	1 (tidal) 230 x 45	
	24 150 x 26 $\frac{1}{2}$	
Total rise or lockage.....	326 $\frac{3}{4}$ feet.	326 $\frac{3}{4}$ feet.
Depth of water on sills.....	10 $\frac{1}{4}$ "	12 "

## WELLAND RIVER BRANCHES.

Length of Canal—Port Robinson Cut to River	
Welland .....	2,622 feet.
“ From the Canal at Welland to the River <i>via</i> lock at Aqueduct.....	300 “
“ Chippawa Cut to River Niagara	1,020 “
Number of locks—One at Aqueduct and one at Port Robinson.....	2
Dimensions of locks.....	150 by 26½ feet.
Total lockage from the Canal at Welland down to River Welland.....	10 feet.
Depth of water on sills.....	9 “ 10 inches.

## GRAND RIVER FEEDER.

Length of canal.....	21 miles.
Number of locks.....	2
Dimensions of locks.....	{ 1 of 150 by 26½ feet. 1 of 200 by 45 “
Total rise or lockage.....	7 to 8 feet.
Depth of water on sills.....	9 feet.

## PORT MAITLAND BRANCH.

Length of canal.....	1¼ miles.
Number of locks.....	1
Dimensions of lock.....	185 by 45 feet.
Total rise, or lockage .....	7½ feet.
Depth of water on sills.....	11 “

The Welland Canal has one entrance from Lake Ontario, at Port Dalhousie, and two from Lake Erie, of which one is for the main line at Port Colborne and one for the feeder route at Port Maitland; it has also an entrance from the River Niagara, at the Town of Chippewa. The enlarged route lies between Port Dalhousie and Port Colborne.

From Port Dalhousie to Allanburgh, 11¼ miles, there are now two distinct lines of canal in operation, the old line and the enlarged, or new line.

From Allanburgh to Port Colborne, a distance of 15 miles, there is only one channel, the old canal having been enlarged.

The new canal was closed on the 5th of December, 1882, and re-opened on the 5th of May 1883.

The old canal was closed on the 30th of November 1882, and re-opened on the 5th of May, 1883.

#### NEW CANAL.

With one exception, the displacement of the superstructure of the Welland Junction Bridge, by the schooner "Midland Rover," no accident of moment has occurred.

The works for the lighting of the canal with gas, from Port Dalhousie to Thorold have been completed.

For the protection of the banks of the canal between Port Dalhousie and Thorold they have been faced with stone.

Full details of the various repairs, renewals, &c., executed during the year will be found in the report of the Superintendent. (App. 5, p. 101.)

#### OLD CANAL.

The necessary repairs and renewals of the year have been heavy, but the works have been maintained in good condition.

Lock No. 2, on the line of the old canal, has been lengthened 70 feet, making it 270 feet in length, the breadth, 45 feet, remaining as heretofore. The upper wings of the lock have been extended so as to form a seat for a bridge. The whole work is completed.

A winter of exceptional severity on the Grand River, and the occurrence of a rapid thaw, led to a freshet in the spring of a dangerous character. Owing to the precautions taken in drawing down the water early in the season the river did not overflow its banks, and the mischief done was confined to the Dunville bridge and the waste weirs. (App. 5, p. 101).

#### NEW WORKS.

The work of widening the section between Humberstone and Port Colborne, known as the "Rock Cutting," has been steadily continued, without interruption to navigation.

The work of constructing an aqueduct by which the waters of the enlarged canal are to be carried over the Chippewa River has been prosecuted during the year. The system of arches through which the river will pass is now completed for one half of its length, leaving the remaining half and the superstructure still to be built.

The several contractors for the work of enlarging the canal have now all been finally settled with, except those for sections 1, 35 and 36, and those for the work in progress, viz., sections 27 and 34, and the enlargement of old lock No. 2.

BURLINGTON BAY CANAL.

Length of canal .....	$\frac{1}{2}$ mile.
Average breadth between piers.....	138 feet.
Least " " .....	108 "

This canal is cut through the sand bar which separates Burlington Bay from Lake Ontario, and is navigable, without locks, for vessels drawing 10 feet of water. It gives access to the Port of Hamilton, and to the town of Dundas, *via* the Desjardins Canal.

The canal was closed on the 11th December, 1882, and re-opened on the 5th of May, 1883.

The re-building of the superstructure of the piers, parts of which were destroyed by fire some years ago, has been now completed. (App. 5, p. 118).

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the Harbour of Montreal to the Port of Kingston, passing through the Lachine Canal, the navigable sections of the lower River Ottawa and the Ottawa Canals, to the City of Ottawa, thence by the River Rideau and the Rideau Canal to Kingston, on Lake Ontario—a total distance of 245 $\frac{5}{8}$  miles.

After leaving the Lachine Canal, the works constructed to overcome the difficulties of navigation are:—

- The St. Anne's Lock;
- Carillon Canal;
- Grenville Canal;
- Rideau Canal.

The total lockage (not including that of the Lachine Canal), is 509 feet—(345 rise, 164 fall)—and the number of locks is 55.

The following table exhibits the intermediate distances from Montreal Harbour:—

Sections of Navigation.	Intermediate distance.	Total distance from Montreal.
The Lachine Canal.....	8 $\frac{1}{2}$	.....
From Lachine to St. Anne's Lock.....	15	23 $\frac{1}{2}$
St. Anne's Lock and Piers.....	$\frac{1}{8}$	23 $\frac{5}{8}$
From St. Anne's Lock to Carillon Canal... ..	27	50 $\frac{5}{8}$
The Carillon Canal.....	$\frac{3}{4}$	51 $\frac{3}{8}$
From Carillon Canal to Chute à Blondeau. ....	4 $\frac{3}{4}$	56 $\frac{1}{4}$
Chute à Blondeau Canal.....	$\frac{1}{8}$	56 $\frac{1}{2}$
From Chute à Blondeau Canal to Grenville Canal.....	1 $\frac{3}{8}$	57 $\frac{5}{8}$
The Grenville Canal.....	$\frac{3}{4}$	63 $\frac{3}{8}$
From the Grenville Canal to entrance Rideau Navigation.	56	119 $\frac{3}{8}$
Rideau Navigation, ending at Kingston.....	126 $\frac{1}{4}$	245 $\frac{5}{8}$

## ST. ANNE'S LOCK.

Length of canal.....	$\frac{1}{8}$ mile.
Number of locks.....	1
Dimensions of locks.....	200 feet by 45 feet.
Total rise or lockage .....	3 "
Depth of water on sills.....	9 "

This work, with guide piers above and below, surmounts the St. Anne's Rapids between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains,  $23\frac{1}{2}$  miles from Montreal Harbour.

This lock was closed to navigation on the 30th of November, 1882, and re-opened on the 30th of April, 1883.

Traffic throughout the season was uninterrupted.

The new lock, with its entrances, having been completed, it was brought into use in August, 1882.

The work of straightening and deepening the channel above the lock, for which an appropriation has been granted, has been commenced. The length of the improved channel will be 4,700 feet, the breadth at bottom 100 feet, and the depth, at lowest water, 10 feet. (App. 5, p. 93).

## THE CARILLON CANAL.

Length of canal.....	$\frac{3}{4}$ miles.
Number of locks.....	2
Dimensions of locks.....	200 feet x 45 feet.
Total rise or lockage.....	16 feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom .....	100 "
Breadth of canal at water surface.....	110 "

This canal overcomes the Carillon Rapids.

From St. Anne's Lock to the foot of the Carillon Canal, there is a navigable stretch of 27 miles, through the Lake of two Mountains and the River Ottawa.

The canal was closed on the 27th of November, 1882, and re-opened on the 28th April, 1883.

No interruption to traffic has taken place.

The new works of enlargement were completed during the past fiscal year, and the old canal was finally abandoned in August 1882.

Booms for the protection and guidance of descending vessels have been placed above the canal.

The high water of the early summer made a breach in the dam constructed across the River Ottawa, at Carillon, without, however, affecting the level of the water above. Steps have been taken towards the repair of the damage done.

For the greater safety of rafts, the entrance to the slide in the dam has been extended to a considerable distance up the river, by the construction of guide piers and booms.

By the construction of the Carillon dam the water at that point has been raised 9 feet. Above this point, for a distance of nearly seven miles, as far as the foot of Grenville Canal, the level of the river has been raised, so that the depth of water on the lower sills of the entrance lock of that canal has been increased 2 feet, and the necessity of using the Chute à Blondeau Canal, situated between these points, has been obviated. During times of very high water, however, the current at the Chute is so strong that an improvement in the channel is required. (App. 5, pp. 94, 96.)

#### CHUTE A BLONDEAU CANAL.

Length of canal.....	$\frac{1}{8}$ of a mile.
Number of locks.....	1
Dimensions of locks.....	130 $\frac{5}{8}$ ft. x 32 $\frac{5}{8}$ ft. at upper end and 36 $\frac{1}{2}$ feet at lower end.
Depth of water on sills.....	6 "
Breadth of canal at water surface.....	30 "
Breadth of canal at bottom.....	30 "

Between the Carillon and Chute à Blondeau Canals there is a navigable stretch of 4 miles. The canal is cut through solid rock, and has only one lock.

The canal was closed on the 27th of November, 1882, and, re-opened on the 28th April, 1883.

During the past year this canal has not been used except by small vessels at high water. (App. 5, p. 94.)

#### GRENVILLE CANAL.

Length of canal.....	5 $\frac{1}{4}$ milles.
Number of locks.....	5
Dimensions of locks.....	200 feet x 45 feet.
Total rise or lockage.....	43 $\frac{3}{4}$ "
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	40 to 50 feet.
Breadth of canal at surface of water.....	50 to 80 "

From the head of the Chute à Blondeau Canal to the foot of the Grenville Canal, there is a navigable stretch of  $1\frac{3}{4}$  miles.

This canal, by which the Long Sault Rapids are avoided, is about 56 miles below the City of Ottawa.

The canal was closed on the 27th of November, 1882, and re-opened on the 1st of May, 1883.

All necessary repairs have been carried out.

#### NEW WORKS.

The works for the enlargement of the canal, commenced in 1871, comprise the construction of five locks 200 feet long and 45 feet wide, with 9 feet of water on the sills; the main channel having a depth of 10 feet and a mean width at bottom, of 40 feet, varying at the surface from 50 to 80 feet, with crossing basins constructed at approximate intervals of half a mile.

All the enlarged locks on this canal are now constructed. The two new single locks at the lower entrance, which are intended to take the place of the existing four combined locks at this point, cannot, however, be brought into full use until the channel at the lower entrance is excavated. This work is being carried on and will it is expected, be completed during the summer of 1884.

The work of completing a wharf and the building of retaining walls at the Grenville entrance of the canal are in progress, and are nearly finished. (App. 5, pp. 94, 96.)

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### UPPER OTTAWA RIVER.

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#### CULBUTE LOCKS AND DAMS.

Number of locks.....	
Dimension of locks.....	200 by 45.
Total rise or lockage.....	18 to 20 feet.
Depth of water on sills .....	6 feet.
Aggregate length of dams .....	625 feet.

From the Grenville Canal to the City of Ottawa, a distance of about 56 miles, the river is navigable. Beyond the city, for a distance of 107 miles, to L'Islet or Culbute, continuous navigation is rendered impracticable by the undermentioned rapids:—The Chaudière, the Duchêne, the Chats, the Chenaux, the Portage du Fort and the Grand Calumet.

The Culbute works, situated at L'Islet, surmount the Culbute and L'Islet Rapids on the north channel of the Ottawa.

These works comprise two locks and three continuous dams, all built of wood. The dams reduce the rapids to smooth water, enabling the river to be navigated from the head of the locks to Des Joachims, a distance of 37 miles.

#### NEW WORKS.

To render the river navigable below the lock, as far as Bryson, it has been necessary to remove part of three shoals and to build two submerged dams.

All the work has been completed, opening up a navigable route of 80 miles, with a minimum depth of 7 feet at extreme low water, between Des Joachims and Bryson, making a total above and below Culbute of 117 miles. (App. 5, pp. 95, 97.)

#### RIDEAU NAVIGATION.

The Rideau system connects the River Ottawa, at the City of Ottawa, with the eastern end of Lake Ontario, at Kingston.

Length of navigable waters .....	126 $\frac{1}{4}$ miles.
Number of locks going from Ottawa to Kingston.	{ 33 ascending. 14 descending.
Total lockage.....446 $\frac{1}{4}$	{ 282 $\frac{1}{4}$ rise, and 164 fall. } at high water.
Dimensions of locks .....	134 by 33 feet.
Depth of water on sills, 5 feet; navigable depth through the several reaches .....	4 $\frac{1}{2}$ feet.
Breadth of canal reaches at bottom.....	{ 60 feet in earth. 54 feet in rock.
Breadth at surface of water.....	80 feet in earth.

For table of distances of stations between Ottawa and Kingston, see Appendix 11, page 156.

The summit level of this system is at the Upper Lake Rideau, but several of the descending reaches are also supplied by waters which have been made tributary to them. The following description gives the sources of supply:—

From the summit, the route towards Ottawa follows the River Rideau, and that towards Kingston follows the River Cataraqui. The whole duty of keeping up the water to its proper level is effected by the reserves, given in detail below.

They may be divided into three systems, viz.:—

1. The summit level, supplied by the Lake Wolf system.
2. The eastern descending level to Ottawa, supplied by the River Tay system, discharging into

Lake Rideau. 3. The south-west descending level to Kingston, supplied by the Mud Lake system, formerly known as the Devil Lake system; discharging into Lake Openacon.

Lake Openacon receives the waters of Buck Lake and Rock Lake.

All these waters on the descending level, supplemented by those of Lake Loughboro, flow into Cranberry Lake, which discharging through Round Tail outlet, forms the River Cataraqui; this river, rendered navigable by dams at various points, affords a course of navigation to Kingston.

The navigation stopped at Kingston Mills on the 30th of November, 1882, and recommenced on the 7th of May, 1883.

At Ottawa, navigation stopped the 27th of November, 1882, and recommenced on the 3rd of May, 1883.

Navigation was twice interrupted during the year. In August, 1882, the steamer "Nile" ran into the lock gates at Black Rapids, causing a delay of a week, and in October, 1882, a break occurred in the bank near Hog's Back, which stopped navigation for about ten days.

The level of the water in the several reaches was well maintained up to the close of navigation, in 1882. In the "Long Reach," however, between Burritts Rapids and Long Island, it fell below navigation height after the middle of October.

A severe storm in May, 1883, caused considerable damage to the canal embankments at Kingston Mills.

All necessary repairs were executed. (App. 5, p. 118.)

#### TAY CANAL.

This canal, when completed, will be a branch of the Rideau Canal, affording communication between Beveridge's Bay, on Lake Rideau, and the town of Perth, a distance of about 6 miles.

The works, embracing the construction of a dam and two locks, 134 feet by 32 feet, with a depth, at the lowest stage of water, of 5 feet, 6 inches, also the deepening of the channel of the River Tay, where required, have been placed under contract and a commencement has been made.

#### RICHELIEU AND LAKE CHAMPLAIN.

This system, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the River Richelieu through the St. Ours Lock to the Basin of Chambly, thence by the Chambly Canal to St.

Johns and the River Richelieu, to Lake Champlain. The distance from Sorel to the Boundary Line is 81 miles.

At Whitehall, the southern end of Lake Champlain, the Champlain Canal is entered, and connection is obtained with the River Hudson, by which the City of New York is directly reached. From the Boundary Line to New York, the distance is 330 miles.

The following table shows the distance between Sorel and New York:—

Sections of Navigation.	Intermediate distance in Miles.	Total distances.
Sorel to St. Ours Lock.....		14
St. Ours Lock to Chambly Canal.....	32	46
Chambly Canal.....	12	58
Chambly Canal to Boundary Line.....	23	81
Boundary Line to Champlain Canal.....	111	192
Champlain Canal to Junction with Erie Canal.....	66	258
Erie Canal from Junction to Albany.....	7	265
Albany to New York.....	146	411

#### ST. OURS LOCK AND DAM.

Length of canal.....	$\frac{1}{8}$ mile.
Number of locks.....	1
Dimensions of locks.....	200 feet by 45 feet.
Total rise or lockage.....	5 "
Depth of water on sills.....	7 " at low water.
Length of dam in Eastern Channel.....	300 "
" " Western Channel.....	600 "

At St. Ours 14 miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours Lock is in the eastern channel.

There is a navigable depth of 7 feet between St. Ours Lock and Chambly Basin, a distance of 32 miles.

The lock was closed on the 28th November, 1882, and opened on the 19th April, 1883.

The substitution of new gates for old ones in June, 1883, caused an interruption to navigation, lasting for 28 hours.

In order to remedy inconvenience caused to vessels by the effects of west winds, the prevalence of which renders the approach to the lock difficult, guide piers and booms have been constructed to hold vessels in the channel, which has itself been deepened. (App. 5, p. 86.)

## CHAMBLY CANAL.

Length of canal.....	12 miles.
Number of locks .....	9

## Dimensions of locks—

Guard Lock, No. 1, at St. Johns.....	122 feet by $22\frac{1}{2}$ feet.
Lift “ “ 2 .....	124 “ 23 “
“ “ “ 3, 4, 5, 6 .....	118 “ $22\frac{1}{2}$ to 24 feet.
“ “ “ 7, 8, 9 combined.....	125 “ $22\frac{1}{2}$ to 23 “
Total rise or lockage.....	74 “
Depth of water on sills.....	7 “
Breadth of canal at bottom....	36 “
“ “ surface of water.....	60 “

Succeeding the 32 miles of navigable water between St. Ours Lock and Chambly Basin—a natural reservoir formed by the expansion of the River Richelieu—is the Chambly Canal, which overcomes the rapids between Chambly and St. Johns, a distance of 12 miles.

This canal was closed to navigation on the 29th November, 1882, and was re-opened on the 1st May, 1883.

An interruption of 30 hours occurred in October, 1883, a barge having run into and carried away the gates of lock No. 5.

In addition to the ordinary repairs, certain works of improvement have been carried out, including the dredging of the channel and the re-building of the walls of locks of St. Johns and Chambly, also the re-building of wharves at St. Ours. (App. 5, p. 86.)

## ST. PETER'S CANAL, CAPE BRETON.

Length of canal.....	about 2,400 feet.
Breadth at water line.....	55 feet.
Lock.....	one tidal lock, 4 pairs of gates.
Dimensions.....	200 feet by 48 feet.
Depth of water on sills.....	18 feet at lowest water.
Depth through canal.....	19 feet.
Extreme rise and fall of tide in St. Peter's Bay 4 “	

This canal connects St. Peter's Bay, on the southern side of Cape Breton, Nova Scotia, with the Bras d'Or Lakes. It crosses an isthmus half a mile in width, and gives access from the Atlantic.

Navigation was closed on the 1st of January 1883, and re-opened on the 16th of April 1883. (App. 5, p. 125.)

#### TRENT RIVER NAVIGATION.

The term "Trent River Navigation" is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in their present condition, are efficient only for local use.

This series is composed of a chain of lakes and rivers extending from Trenton, at the mouth of the Trent on the Bay of Quinté, Lake Ontario, to Lake Huron.

Many years ago the utilizing of these waters for the purpose of through water communication between Lakes Huron and Ontario, was projected.

The course in contemplation was as follows:—

Through the River Trent, Rice Lake, the River Otonabee and Lakes Clear, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 166 miles from Trenton; from Lake Balsam by a canal and the River Talbot to Lake Simcoe; thence by the River Severn to Georgian Bay, Lake Huron; the total distance being about 235 miles.

The execution of this scheme, commenced in 1837, was subsequently deferred. By certain works, however, below specified, sections of these waters were made practicable for navigation and for the passage of timber. A branch of the main course, extending from Sturgeon Lake south, affords communication with the town of Lindsay, and, through Lake Scugog to Port Perry, a distance of 190 miles from Trenton. Of this distance, 155 miles are navigable for vessels of light draught.

The following table gives the distance of navigable and unnavigable reaches:

	Navigable.	Unnavigable.
From Trenton, Bay of Quinté, to Nine Mile Rapids...		9
“ Nine Mile Rapids to Percy Landing .....	19½	
“ Percy Landing to Heely's Falls Dam .....		14½
“ Heeley's Falls Dam to Peterboro' .....	51½	
“ Peterboro' to Lakefield .....		9½
“ Lakefield to Burleigh .....	12	
“ Burleigh Rapids .....		1
“ Burleigh Rapids to Buckhorn Rapids .....	7	
“ Buckhorn Rapids .....		1
“ Buckhorn Dam to Lindsay .....	36½	
	126½	34½
“ Lindsay to Port Perry at the head of Lake Scugog .....	28½	
	155½	34½

Total distance, Bay of Quinte to Port Perry .....	190 miles.
Passing to Fenelon Falls the distance from Buckhorn Dam to Fenelon is.....	31½ "

The following is a list of the works :—

<i>Chisholm's Rapids.</i>	Distance from Trenton in miles.
The works here consist of a canal and lock, a dam and slide .....	15½
<i>Percy Landing.</i>	
A retaining boom for saw logs here .....	28½
<i>Campbellford.</i>	
Guide booms.....	34¾
<i>Middle Falls.</i>	
The works consist of 4 dams and 2 slides.....	37¾
<i>Crow Bay.</i>	
A retaining boom.....	38
<i>Heeley's Fall.</i>	
A dam and slide are in operation here.....	42¾
<i>Crook's Rapids, Hastings.</i>	
The works consist of 1 lock, 1 dam and slide for timber....	34½
<i>Whitlas' Rapids.</i>	
The works situated below Peterboro, consist of a lock, dam and canal.....	92¾
<i>Little Lake.</i>	
The works consist of 3 piers and 1 boom.....	94
<i>Burleigh.</i>	
Timber slides.	
<i>Buckhorn Rapids.</i>	
There is a dam at this point, which is important as keeping up the level of the water of the lakes west of it, as far as Bobcaygeon, including Lakes Pigeon, Ball, Buckhorn and Chemong .....	125

*Bobcaygeon.*

There are two dams here with canal, lock and slide. These dams retain the waters of the reach as far as Fenelon Falls and Lindsay Lock..... 140½

*Fenelon Falls.*

A large slide and booms..... 155½

*Lindsay.*

The old lock, having become useless, was rebuilt by the Government of the Province of Ontario in 1879. Its dimensions are 134 x 33 feet, with 5 feet water on the sills. The navigation is, by this work, extended to Port Perry, Lake Seugog..... 161½

The dimensions of the Dominion locks are 133 feet 6 inches x 33 feet, with 5 feet depth of water on the sills.

In 1855 portions of the above named works were transferred to a committee composed of persons connected with the lumber trade. The committee was authorized to collect tolls on timber passing through. The works so transferred, at this date, were the slides and booms at Chisholm's Rapids, the retaining boom at Myersburg, the guide boom at Campbellford, the dams and slide booms at Middle Falls, the retaining boom at Crow Bay and the slide at Heeley's Falls.

These works have been re-assumed by the Government, the committee of management having failed to carry out the conditions of the transfer.

The Lindsay lock was constructed by, and is under the control of, the Province of Ontario.

Navigation ceased on the 29th November, 1882, and re-opened on the 28th of April, 1883.

At Bobcaygeon the upper dam received such repair as was necessary for its preservation; its dilapidated condition, however, will render the construction of an entirely new work necessary. (App. 5, p. 121.)

## NEW WORKS.

The new works for the improvement of the Trent Valley navigation, for the construction of which appropriations have been voted by Parliament, are at the following places:—Burleigh Rapids, Buckhorn Rapids, and Fenelon Falls. Their completion will give communication between Lakefield, 9½ miles from Peterboro',

and Balsam Lake, the headwaters of the system, opening up a total of about 150 miles of direct and lateral navigation.

At Lakefield,  $9\frac{1}{2}$  miles from Peterborough, the existing dam, a private one, which maintains navigation on Lake Katchewanoe up to Young's Point, has been expropriated under the authority of an Order in Council of the 7th of October, 1882, and the construction of a new work is in contemplation, the existing dam having been seriously damaged and rendered dangerous during the prevalence of the spring freshets in 1883.

At Young's Point, 5 miles from Lakefield, the dam between Lake Katchewanoe and Clear Lake, has fallen into disrepair, and it is now in too dilapidated a state to admit of restoration. The construction of a new dam has been authorized.

At Burleigh Rapids, 10 miles from Young's Point, a canal will be constructed about  $2\frac{1}{4}$  miles in length, passing the Burleigh and Lovesick Rapids, and giving communication between Stony Lake and Deer Bay. The work, comprising the construction of three lift-locks and certain dams, has been placed under contract.

At Buckhorn Rapids, 7 miles from Burleigh Rapids, a canal about one-fourth of a mile long is to be constructed, having one lift-lock. The works have been placed under contract. The rock excavation is well advanced.

At Fenelon Falls, 32 miles from Buckhorn Rapids, it will be necessary to construct a canal about one-third of a mile in length, connecting Sturgeon Lake with Cameron Lake. This canal will have two lift locks. The works are under contract; the greater part of the excavation has been completed, and the masonry work is commenced.

In all the above named works the locks will be of the following dimensions:—

Length.....	134 feet.
Breadth.....	33 “
Depth on sill.....	5 “

(App. 5, p. 127.)

#### MURRAY CANAL.

This canal will extend through the Isthmus of Murray, giving connection westward between the headwaters of the Bay of Quinté and Lake Ontario, thereby practically extending the navigation system of the River St. Lawrence, and avoiding the circuitous and exposed route south of the Peninsula of Prince Edward.

The work on this Canal, commenced under a contract given out in August, 1882 has made satisfactory progress.

The Canal will be about 6 miles long, without locks, having a depth of 11 feet below the lowest known water level of the lake, and a width at the bottom of 80 feet

From its terminal point on the lake, namely, Presqu'Ille, to the entrance of the Welland Canal, the distance is about 120 miles, the open lake navigation being reduced about one-half. (App. 5, p. 126.)

BRITISH COLUMBIA.

At the request of the Provincial Government, a survey has been made of the district lying between Lake Sushwap and Lake Okanagan, with a view to ascertaining the feasibility of constructing a canal to connect these lakes. The survey has established the practicability of the scheme, but the cost of the work would be considerable. The length of the canal would be about 18 miles.

I have the honour to be,

Your Excellency's most obedient servant,

CHARLES TUPPER,

*Minister of Railways and Canals.*

December 31st, 1883.



## APPENDIX No. 3

## CANADIAN PACIFIC RAILWAY.

OFFICE OF THE ENGINEER IN CHIEF.

OTTAWA, 22nd September, 1883.

SIR,—I have the honor to submit to you my Report upon the progress made, up to the present date, with the surveys and works of construction in connection with the Canadian Pacific Railway.

In the table of distances which appeared in my report of last year, I estimated the mileage of the Central Section (Red River to Savona's Ferry) at 1,350 miles. This was the distance between those points, as originally estimated *via* the Yellow Head Pass. The surveys by way of the Kicking Horse Pass were, at that time, not in a sufficiently forward state to satisfy me that a practicable route could be found in that direction; but from information which has since reached me, I believe that I am now safe in stating that a route, not only feasible, but shorter than the other by about 100 miles, has been found to exist, *via* the Kicking Horse Pass, and I think I may now confidently reduce the length of the central section to 1,250 miles or thereabout.

## TABLE OF DISTANCES.

## TRUNK LINE.

*Montreal to Port Moody.*

	Miles.
Montreal to Ottawa.....	120
Ottawa to Pembroke.....	165
Pembroke to Callander.....	120
Callander to Port Arthur (formerly Prince Arthur's Landing)	650
Port Arthur (formerly Prince Arthur's Landing) to Red River	433
Red River to Savona's Ferry.....	1,250
Savona's Ferry to Port Moody.....	215
	<u>2,893</u>

## Branch lines constructed and under construction :—

	Branch	Miles.
Algoma	.....	93
Pembina	.....	65
Colville Landing	.....	2
Selkirk	.....	20
Stonewall	.....	20
South Western	.....	164
Gretna	.....	14
Emerson	.....	15
		<u>393</u>

The Company have acquired and are working the following branches :—

	Miles.
St. Lin.....	13
St. Jerome.....	14
St. Eustache.....	8
Aylmer.....	9
Brockville.....	46
Perth.....	12
	<hr/> 102 <hr/>

*Summary.*

	Miles.
Trunk Line.....	2,893
Branches built and under construction.....	393
Branches acquired .....	102
	<hr/> 3,388 <hr/>

**TRUNK LINE.**

*Montreal to Ottawa, 120 miles.*

This section formerly constituted the Western Division of the Quebec, Montreal, Ottawa and Occidental Railway, and was built and owned by the Province of Quebec. It was purchased during last year by the Canadian Pacific Railway Company. This portion of the line is well and substantially constructed.

*Ottawa to Pembroke, 105 miles.*

Formerly a portion of the Canada Central Railway, and acquired by the Canadian Pacific Railway Company about two years ago. The line is well built.

*Pembroke to Callander, 120 miles.*

Formerly known as the Canada Central Extension Railway, and built under a Dominion Government subsidy of \$12,000 per mile. It has recently been completed and is substantially built. It is now owned and operated by the Canadian Pacific Railway Company.

*Callander to Port Arthur (formerly Prince Arthur's Landing) 650 miles.*

This appears as the "Eastern Section" in the contract with the Canadian Pacific Railway Company, who, under the terms of their contract, undertook its construction. The location surveys have been connected, and no grade will have to be encountered of greater severity than 53 feet per mile, the minimum degree of curvature being 8° which is much more favorable than was originally anticipated.

The grading and bridging are completed, and the track laid for a distance of ninety miles west of Callander; and for a further distance of ten miles (to Sudbury Junction) the grading and bridging are in a forward state. From Sudbury Junction, where the Algoma Branch leaves the Trunk line, the work of construction is in active progress for a further distance of about fifteen miles, and the location surveys are being definitely completed between that point and Pic.

From Pic to Nepigon, (Red Rock) a large force of men is at work, and it is expected that a large amount of heavy work will be executed during the coming winter.

From Nepigon (Red Rock) to Port Arthur (formerly Prince Arthur's Landing) the grading and bridging are practically completed, being so far advanced as to admit of the immediate vigorous prosecution of the track laying over the entire distance. The track is already laid, and construction trains running for a distance of about thirty-five miles.

*Port Arthur (formerly Prince Arthur's Landing) to Red River, 433 miles.*

This portion of the road appears in the contract with the Canadian Pacific Railway Company, as the "Lake Superior Section," and its construction was undertaken by the Government. Early in May last the construction was in such a forward state as to admit of the running of regular trains for passengers and freight from Lake Superior to Winnipeg. It became necessary in the interest of the country to open this section for regular traffic without delay, and arrangements were therefore made with the Company for this service over the whole distance; and as it was deemed essential that the operation of the line and the work remaining to be done, by construction trains, *i.e.*, the filling up of the temporary trestles, &c., should be under one and the same control, the Government contractors for the sub-section between Eagle River and Rat Portage were under certain conditions to which they consented, relieved of the remainder of their contract, the Company undertaking to complete the section for a bulk sum, the work remaining unfinished by the Government contractors being undertaken by the Company at the contract prices. Upon the completion of this arrangement, the entire section between Port Arthur (formerly Prince Arthur's Landing) and Red River came under the Company's control, since which the work of construction has been steadily prosecuted, and the road bed has been, in consequence, improving daily in condition. The traffic is conducted with great regularity, and has proved to be of considerable volume both in passengers and freight. I am of opinion that over 90 per cent. of the business between Eastern Canada and the North-West has followed this route, and the advantages accruing from the opening of this section have been felt during the past summer throughout the Dominion, and especially in Manitoba and the North West.

The Company have operated the road under many difficulties.

There was but one engine house on the section, and only a few station houses and section men's dwellings. The water service was incomplete, and many embankments had to be made, and others, which had subsided, picked up. Most, if not all, of these difficulties will, no doubt, be removed by next year.

*Red River to Savona's Ferry (Kamloops), 1,250 miles.*

In the contract with the Canadian Pacific Railway Company, this division of the road is designated as the "Central Section," and is being built by the Company in pursuance of the terms of their contract. The works upon this section have been pushed forward with an energy perhaps unexampled in the history of railway construction, and also under the perfect organization established by the Company, with the highest skill.

Trains are now running over a distance of 881 miles west of Winnipeg to a point forty miles beyond Calgary. Westerly from this point the grading and bridging are almost completed as far as the summit of the Kicking Horse Pass, in the Rocky Mountains, and distant from Calgary about 125 miles west, and it is expected that the track will reach this point before the close of the present season.

At the date of my last annual report, the track was laid and trains passing over it for a distance of 455 miles west of Winnipeg. To this it is believed will be added, before winter sets in, 510 miles, making the distance west of Winnipeg traversed by trains 965 miles.

Upon this portion of the road, the curves are easy, and the gradients no where exceed 40 feet to the mile, except on the western five miles, on which they reach 75 feet to the mile. Between the Kicking Horse Pass and Savona's Ferry (Kamloops), a large staff of Engineers have been employed during the past summer, and I am informed that the preliminary surveys are completed continuously westward, from the summit of the Kicking Horse Pass to the foot of the heavy grade on the west slope of the Selkirk Range. It is upon this portion of the road that the most severe grades occur, but it is stated that the heaviest to be encountered will not be more than 116 feet per mile, and that these heavy grades will all be contained within a distance of 100 miles, a very great advantage in every respect. From the second crossing of the Columbia River, it is proposed to run the line through the Eagle Pass,

and thence along the south side of Lake Kamloops to Savona's Ferry, but up to the present time the Company have not submitted, for the approval of the Government, any plans or profiles of the Rocky Mountain Division of the road. I have already stated that, in my opinion, the adoption of this route will shorten the central section by about 100 miles.

*Savona's Ferry to Port Moody, 215 miles.*

This portion of the road is designated as the "Western Section" in the Company's Contract, the Government undertaking its construction. In pursuance of this arrangement the grading, bridging and tracklaying have been let in five contracts, viz:—

Savona's Ferry to Spence's Bridge,	42 miles,	D. O. Mills,	Contractor.
Spence's Bridge to Lytton	- - - 29	"	"
Lytton to Boston Bar	- - - 29	"	"
Boston Bar to Emory's Bar	- - - 29	"	"
Emory's Bar to Port Moody	- - - 86	A. Onderdonk,	"

*Savona's Ferry to Spence's Bridge.*

As it was deemed probable that the Company might find it desirable to adopt a route to the south of Lake Kamloops, a new location was made during the past summer for about twelve miles west from Savona's Ferry along the south side of the Thompson River, and was found to be equally practicable, for purposes of construction, with the old location on the north side, and also two miles shorter.

The contractor was informed that he could proceed with the work on the original location on the north side of the river at any time he thought proper to do so; but he stated that it would, in his opinion, be found better to adopt the location on the south side, upon which he was equally willing to build the road. As it was not a pressing matter with him to commence work on these 12 miles, he preferred to await a decision upon the location, although he had put a large force of men upon that portion of his contract to the westward. No work has therefore been done on the old location, and a decision having been arrived at in favor of the route to the south of Lake Kamloops, I yesterday informed the contractor that he might proceed with the work on the new location along the south side of the Thompson River. From this point (12 miles west of Savona's Ferry) to Spence's Bridge, a heavy force has been employed all summer; the grading is in a forward condition and, together with the bridging, will probably be completed by September next ready to receive the track.

*Spence's Bridge to Lytton.*

About 95 per cent. of the grading upon this contract is done, and some of the bridges are in course of erection, but very little timber is to be had in this locality, and the bridges will be built as the timber is brought forward by train immediately in advance of the track-laying.

*Lytton to Boston Bar.*

A large force of laborers and carpenters has been employed upon this contract during the summer. With the exception of the iron bridge over the Fraser River, the structures are nearly finished, and the grading is rapidly approaching completion, and it is believed the track laying will reach the Fraser River Bridge in a few weeks. The masonry of the abutments and piers of the Fraser River Bridge is being built, and stone is quarried in the vicinity in quantity nearly sufficient to complete the structure. The iron superstructure was shipped from England in May last, but has not yet arrived in British Columbia. The track is laid upon this contract for about sixteen miles, upon which ballasting is in progress.

*Boston Bar to Emory's Bar.*

The works upon this contract are practically completed. The track is laid and ballasted throughout, and nothing remains to be done but some trimming up of out-

tings and embankments. The contract has, I believe, been faithfully carried out and the road substantially built.

*Emory's Bar to Port Moody.*

The wharf at Port Moody is built, but the ravages of the sea worm have been such that it will be necessary to substitute iron screw piles for the timbers on the front. The station buildings are erected but the water service is not yet supplied.

The bridging is not entirely completed, but the grading is sufficiently advanced to admit of the track being laid throughout, and this it may be expected will be done during the present season, and the whole of this contract completed by next July. The track is now laid for a distance of forty miles.

After the completion of these contracts, there will remain the erection of engine houses, station houses and section men's dwellings.

It is estimated that the track will be laid over the whole of the western section, *i. e.* from Savona's Ferry to Port Moody, by this time next year.

It affords me much pleasure to be able to state that the Pacific Railway Company are doing their work in a manner which leaves nothing to be desired. The road is being most substantially built. The larger streams are being spanned by strong iron bridges, resting upon abutments and piers of massive masonry, and the small streams on the eastern section will be passed through solid stone culverts. On the central section, the streams are for the most part crossed by substantially built pile bridges.

The work so far as it has been done, up to the present time, has been performed most faithfully, and in a manner fully up to the requirements of the contract.

I am enabled to speak with confidence upon this point, having made a personal inspection during the last two months of the whole work from a point east of Port Arthur (formerly Prince Arthur's Landing) to Port Moody.

BRANCH LINES.

*Algoma Branch—Sudbury Junction to Algoma Mills.*

The work upon this branch is progressing rapidly; the grading is completed, and track laid from Algoma mills for a distance of fifty-seven miles, and the grading and bridging are progressing rapidly on the remaining distance, and it is the expressed intention of the Company to have the entire branch completed and in condition for traffic by the opening of navigation in May next.

*Pembina Branch—Emerson to St. Boniface.*

This branch was constructed by the Government of Canada, and transferred to the Company on 1st May, 1881.

*Colville Landing Branch—East Selkirk to Colville Landing.*

This branch was built by the Government of Canada, and transferred to the Company on 1st May, 1881.

*Selkirk Branch—Winnipeg to West Selkirk.*

This branch was completed by the Company during the past season, and is now under traffic.

*Stonewall Branch—Winnipeg to Stonewall.*

This branch was built by the Government of Canada, and by them transferred to the Company upon the Company paying the cost according to the terms of the contract.

*South-western Branch Winnipeg to Pembina Mountain.*

The Company have constructed and put in operation the section as far west as Manitoba City, a distance of 101 miles from Winnipeg; west of this point no pro-

gress is at present being made with the works of construction, but the line is being located.

*Gretna Branch—Pembina Mountain Junction to Gretna.*

The Company completed the construction of this branch in 1882, and are now working the traffic thereon. Gretna is on the International Boundary, about twenty miles west of Emerson.

*Emerson Branch—Pembina Mountain Junction to Emerson.*

This Branch is under construction by the Company, and it is expected that it will be completed and placed under traffic before the close of the present season. The Bridge over the Red River on this Branch is being built by the Town of Emerson, aided by a subsidy of \$50,000 from the Government of Canada.

*St. Lin, St. Jerome, St. Eustache and Aylmer Branches*

Were acquired by the Company by the purchase of the Western Division of the Quebec, Montreal, Ottawa and Occidental Railway, being branches of that line.

*Brockville and Perth Branches*

Formed part of the Canada Central Railway purchased by the Company.

*Rolling Stock.*

The Rolling Stock owned by the Government of Canada, and which was employed in connection with the works of construction on the Canadian Pacific Railway, consisting of:—

- 19 engines.
- 3 passenger cars,
- 1 baggage and smoking car.
- 397 platform cars.
- 2 box cars.
- 1 steam shovel car.
- 1 caboose.
- 1 boarding car,

is to be transferred to the Canadian Pacific Railway Company at a price established by appraisers appointed to value them.

*Fraser River Bridge.*

This bridge has been manufactured in England under the supervision of Mr. Joseph Tomlinson, an Engineer of the Department, a gentleman of considerable experience in bridge construction. It was shipped in May last, but has not yet reached British Columbia.

*Station Buildings and Section Men's Houses.*

Mr. John McDonald contracted to build six station houses between Rat Portage and Fort William, four of these he has completed, and the other two are in an advanced state towards completion.

Mr. John Patterson contracted to build three station houses and twelve section men's dwellings between Emory's Bar and Savona's Ferry; these were all completed last autumn, and have since been occupied by the Engineering Staff.

*Steel Rails.*

The 8,800 tons of steel rails mentioned in my last year's report as having been purchased, to be delivered at Port Moody, have all been received except one cargo which is now afloat.

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*Company's Rolling Stock.*

- 236 engines.
- 73 first class passengers cars.
- 33 second class passenger cars.
- 48 baggage and mail cars.
- 20 dining, sleeping, palace, &c., cars.
- 4,386 platforms.
- 1,735 box.
- 126 cabooses, pay cars, &c.
- 6 derriek and coal cars.
- 17 snow ploughs.

I have the honor to be, Sir,  
Your obedient servant,

COLLINGWOOD SCHREIBER,  
*Engineer in Chief.*

## APPENDIX No. 4.

## CANADIAN GOVERNMENT RAILWAYS IN OPERATION.

OFFICE OF THE CHIEF ENGINEER AND GENERAL MANAGER,  
OTTAWA, 15th October, 1883.

	Miles.
Intercolonial Railway	840
Prince Edward Island Railway	199
Windsor Branch Railway	32
	<u>1,071</u>

SIR,—Herewith I have the honor to place before you the Reports and accounts in connection with the working of the railways in operation under my charge, for the year ended the 30th June, 1883, comprising in the aggregate, as in the preceding year, a length of 1071 miles.

The operations of these railways during the year under consideration I trust may be on the whole regarded as fairly satisfactory.

The following summary statement will show the results of the operations of the railways:

Name of Railway.	Mileage.	—	Amount.	Profit.	Loss.
			\$ cts.	\$ cts.	\$ cts.
Intercolonial.....	840	Earnings.....	2,370,921 10		
		Expenses.....	2,360,323 27	10,547 83	
Prince Edward Island.....	199	Earnings.....	146,170 42		
		Expenses.....	252,808 41		106,637 99
Windsor Branch.....	32	Earnings.....	24,113 89		
		Expenses.....	23,103 93	1,009 96	
Total.....	1,071			11,557 79	106,637 99
					11,557 79
Loss.....					95,080 20
Less disbursements in connection with accident in 1880...					9,941 45
		Nett Loss.....			85,138 75

## INTERCOLONIAL RAILWAY.

I am pleased to be able to state that upon examination of the accounts of the year just closed, it will be observed that the operations of the Intercolonial Railway show results slightly more favorable than those of the preceding year, thus:—

Nett Earnings, 1882-83.....	\$10,547 83
do 1881-82.....	9,605 18
Increase.....	\$ 942 65

The officers of the railway have been very successful in their efforts to secure business, the volume of which has steadily continued to increase, indicating a progressive movement in trade. It will be observed that the growth of the traffic is in a higher ratio than the increase of the nett earnings, owing to the fact that the classes of freight showing the most considerable increase are those which are carried at the low rates established by the Honorable Minister for the promotion of home industries.

In order that the Honorable Minister may more fully realize the increase of traffic which has taken place from year to year, I submit the following statements:

The earnings for the past four years were:—

1879-80.....	\$1,506,298 48
1880-81.....	1,760,393 92
1881-82.....	2,079,262 66
1882-83.....	2,370,921 10

The tons of freight carried were:—

1879-80.....	561,924
1880-81.....	725,577
1881-82.....	838,956
1882-83.....	970,961

The number of passengers carried were:—

1879-80.....	581,483
1880-81.....	631,245
1881-82.....	779,994
1882-83.....	878,600

The increase in the traffic from time to time so heavily taxed the rolling stock, that it became imperatively necessary to the prompt despatch of the business of the road to add to it annually; and I now submit a statement showing the rolling stock purchased on capital account up to 30th June, 1879, with the additions made thereto in each subsequent year.

#### *Rolling Stock.*

	Engines.	Passengers Train Stock.			Conductors' Vans	Box and Cattle Cars.	Platform Cars.	Coal Cars, Capacity in Tons	Snow Ploughs.	Wing Ploughs.	Flangers.	
		1st Class.	2nd Class.	Baggage, Mail, &c.								
	No.	No.	No.	No.	No.	No.	No.	Ton'g	No.	No.	No.	
Total 30th June, 1879.....	100	46	34	33	34	1,162	1,028	4,500	27	9	4	
Additions in 1879-80.....			2			2	18					
do 1880-81.....	12	2	2		3	68	72		1			{ 12 2 Converted box " Platform.
do 1881-82.....	3	3	3	2	6	249	43	6,500				
do 1882-83.....	20	1	10		6	20	210	8,200				
Total.....	135	52	51	35	51	1,499	1,371	19,200	28	9	18	

The list of rolling stock prepared by the Mechanical Superintendent shows a greater number of engines than appears in the above table, some locomotives of larger type having been purchased each year at the expense of revenue to maintain the stock; while owing to the pressure upon the engine power arising from the growth of the traffic, the old and smaller engines, which the new ones were to have replaced, were not sold nor struck off the list, but had to be kept in the service.

On reference to the reports of the Chief Superintendent, Mechanical Superintendent and Chief Engineer, it will be observed that the road and rolling stock have been maintained in a state of efficiency, and that many improvements, extensions and additions have been made along the line, which have entered into the accounts for operation. Such works are certainly not ordinary maintenance.

The improved facilities at the ocean terminus at Halifax have aided greatly in the despatch of the ocean-borne traffic, and steamship owners speak very highly of the accommodation thereby afforded.

The severe winter and unusually heavy snowfall in the West interfered seriously with the interchange of traffic with the Grand Trunk at Chaudière Junction, rendering it impossible for that railway to handle the traffic offering at the time, and causing freight from the east per Intercolonial to accumulate, while at the same time freight from the west was very slow in reaching the Chaudière. This of course gave rise to much dissatisfaction among shippers, and resulted in the diversion from the Intercolonial route of large quantities of eastern bound freight, which found its way to the Maritime Provinces by American lines *via* Boston and Portland. This was necessarily very prejudicial to the Intercolonial, but I am pleased to be able to state that early in the summer the exertions of our officers, and of the officers of the Grand Trunk Railway, were successful in recovering the traffic.

It is unnecessary that I should enter at length into the operations of the Intercolonial Railway as full information may be gathered from the reports of the Chief Superintendent, the Chief Engineer and the Mechanical Superintendent, and the accompanying accounts.

#### CAPITAL ACCOUNT.

##### *Halifax Extension.*

The long wharf with the extensive warehouse, the coal wharf, with elevated tracks complete and provided with shoots and shed, the grain elevator with its long conveyer, are now all completed, and deep water has been obtained on each side of the wharves by dredging, and by blasting out large nests of boulders; and it is now believed that the shipping facilities at the port of Halifax are equal if not superior to those at competing American ports. This has, indeed, been admitted by the agents of some of the lines of steamers frequenting the port of Halifax. The elevator was not completed early enough in the season to afford a fair trial to the grain traffic. One cargo was put through it, but not until shortly before the opening of the port of Montreal. But now that it is completed and in working order, grain can be shipped with facility during the ensuing winter.

The main line constructed along the west side of the Richmond yard with the extension of a double track to North Street, has been found to be of great assistance to the movement of traffic, and has added much to the safety of trains, the shunting being no longer interfered with by incoming and outgoing trains.

##### *Increased accommodation at St. John.*

The extensions and improvements are being carried on vigorously. A brick freight house, flour shed, and bonded warehouse, have been erected and put in use, the benefit of which is felt by the mercantile community as well as by the officers of the railway, enabling the business to be conducted much more promptly and systematically than formerly. The yard has also been graded and the tracks re-arranged, and the grounds have been drained by the construction of a large brick sewer.

##### *St. Charles Branch.*

The construction of this branch was undertaken by Mr. M. J. Hogan so far as the grading, bridging and tracklaying, &c., are concerned, and the cribwork along the front of the town of Levis, by Mr. Lachance. The work under Mr. Hogan's

tract was carried on during the year, but on the 30th June a considerable quantity remained to be done. Mr. Lachance completed the cribwork last winter, but the track is not yet laid over it throughout.

*Rolling Stock.*

The following rolling stock was supplied during the year on capital account:—

- 20 engines.
- 1 first-class car.
- 10 second class cars.
- 20 box cars.
- 210 platform cars.
- 410 gondola cars.
- 6 vans.

Without this additional rolling stock, it would, as I have said, have been impossible to move the increased traffic in a satisfactory manner.

PRINCE EDWARD ISLAND RAILWAY.

The reports of the Superintendent and Mechanical Superintendent herewith submitted, will be found to deal very fully with the operations of the year: and as these reports and the accounts accompanying them afford ample information as to the conducting of the traffic and the condition of the road and rolling stock, it is unnecessary for me to offer any lengthy remarks. However, as the operating expenses show so great an excess over those of the preceding year, some explanation appears to be due to myself. I may therefore call attention to the fact that in the accounts of the year under consideration there appears an item of \$9,941.45 for disbursements in connection with an accident which occurred in 1880. I may also state that two new engines were purchased during the year to maintain the stock, at a cost of \$24,198.22; that the sleeper renewals were very extensive, no less than 113,423 new ones having been laid; that several buildings were erected, and that a large well was provided, with stationary engine and pump. All those works entered into the operating expenses, and as many of them are not likely to recur to the same extent for some time, it may be expected that the expenses of no single year will in future be so heavy.

It is pleasing to observe that the engines are moving larger trains than in former years, as this indicates that the new engines added at the expense of capital, and also those purchased on maintenance account, are good serviceable machines, and that they are maintained in a state of efficiency.

*Capital Account.*

There have been added to the rolling stock during the year—

- 2 engines.
- 25 box cars.
- 25 platform cars.

The necessity for this increase of rolling stock arose from a great rush of business for about two months in the autumn, immediately before the close of navigation, when it was found impossible to move the freight to the satisfaction of shippers during that short period, and as each season came round for the export of the products of the soil, a great clamor for cars arose which could not be allayed owing to the smallness of the stock.

In May last Mr. L. B. Archibald resigned the office of Superintendent of this road in order to take a position on the Canadian Pacific Railway, and was succeeded by Mr. James Coleman, who immediately assumed the duties of the office.

WINDSOR BRANCH RAILWAY.

The reports of the Chief Superintendent and Chief Engineer of the Intercolonial Railway, herewith submitted, give a full statement of the condition of this line, which has been maintained in good running order. A number of improvements,

additions and extensions have been made, and some of the old iron rails have been replaced by steel. Notwithstanding all these works, I am pleased to be able to state that the one-third of the gross earnings paid to the Government has covered the expenditure for maintenance of way and works, which has therefore been no pecuniary burden upon the country.

I have the honor to be, Sir,

Your obedient servant,

COLLINGWOOD SCHREIBER,

*Chief Engineer and General Manager.*

### INTERCOLONIAL RAILWAY.

OFFICE OF THE CHIEF SUPERINTENDENT,  
MONCTON, N.B., 12th October, 1883.

COLLINGWOOD SCHREIBER, Esq.,

Chief Engineer and General Manager of Government Railways,  
Ottawa.

SIR,—I have the honor to submit the following Report upon the working of the Intercolonial Railway, for the fiscal year which ended 30th June, 1883.

I enclose the reports of the Chief Engineer and the Mechanical Superintendent, and also the following statements prepared by the Chief Accountant and Treasurer.

No.	1. Capital Account.	
"	2. Revenue Account.	
"	3. Locomotive Power	(Abstract No. 1).
"	4. Car Expenses	( " " 2).
"	5. Maintenance of Ways and Works	( " " 3).
"	6. Station Expenses	( " " 4).
"	7. General Charges	( " " 5).
"	8. General Stores Account.	
"	9. General Balance.	
"	10. Comparative Statement of Averages.	

The length of railway worked was the same as last year, 840 miles.

#### CAPITAL ACCOUNT.

The total cost of road and equipment was, on the 30th June, 1882, \$39,560,021.23. The additions during the year were as follows:—

For the Halifax Extension .....	\$ 257,824 73
" Increased accommodation, St. John.....	201,312 18
" Repairs and Improvements, Rivière du Loup Line.....	6,805 86
" The Completion of the Intercolonial Railway.	40,124 59
" Additional Rolling Stock.....	628,244 39
" The St. Charles Branch .....	482,197 09
" The Dartmouth Branch.....	124 12
	<hr/>
	\$1,616,632 96

Making the total cost to the 30th June, 1883, \$41,176,654.19.

At Halifax the wharf and warehouse used for ocean steamers were more than doubled in size, another large wharf with a trestle work and store house on it for shipping and storing coal was constructed, a grain elevator of the most modern and

approved plan with a capacity of one hundred and fifty thousand (150,000) bushels was built, and a new main track was constructed between Halifax and Richmond Stations.

At St. John extensive improvements were made. The land owned by the railway being too small to properly accommodate the traffic, an adjoining piece of considerable extent was purchased; the tracks and buildings were re-arranged, and three large and substantial warehouses of brick were erected; an elevated trestle work and coal shed for the shipment and storage of coal was built on the wharf.

At Rivière du Loup, the station house was taken down and entirely rebuilt upon an enlarged and improved plan.

The amount for completion of the Intercolonial Railway, consists of payments on account of claims in connection with the construction of the line between Rivière du Loup and Truro, and of the legal and other expenses of settling the same. Additional rolling stock having become necessary by the great increase of traffic, it was procured in accordance with the Parliamentary votes for that purpose.

The construction of a branch line from St. Charles Station on the Intercolonial Railway to Point Lévis, a distance of about thirteen miles, was commenced and continued during the year. This work is more than half completed, and will it is believed be finished during the current fiscal year.

#### REVENUE ACCOUNT.

This account again shows an excess of earnings over expenditure, the nett earnings being a little more than last year.

The gross earnings of the year were..... \$2,370,921 10

The working expenses were ..... 2,360,373 27

Nett earnings.....\$ 10,547 83

The following shows the nett earnings for each of the last three years:—  
Nett Earnings.

1880-81—Gross Earnings.....\$1,760,393 92  
Expenses..... 1,759,851 27

\$ 542 65

1881-82—Gross Earnings..... 2,079,262 66  
Expenses..... 2,069,657 48

9,605 18

1882-83—Gross Earnings..... 2,370,921 10  
Expenses..... 2,360,373 27

10,547 83

Total nett earnings in three years..... \$20,695 66

The gross earnings have largely increased over last year. The following shows the increase of gross earnings for three years:—

	Gross earnings.	Increase
1879-80.....	\$1,506,298 48	
1880-81.....	1,760,393 92	\$254,095 44

1881-82.....	2,079,262 66	318,868 74
1882-83.....	2,370,921 10	291,658 44

Increase in three years..... \$864,622 62

The earnings per mile of railway compare as follows with those of previous years:—

	Earnings per mile of railway.	Increase.
1878-79.....	\$1,812 46	
1879-80.....	1,825 81	\$ 13 35

	Earnings per mile of railway.	Increase.
1880-81.....	2,095 70	269 89
1881-82.....	2,475 31	379 61
1882-83.....	2,822 52	347 21

The following is a comparative statement of a few of the chief articles of freight showing the quantity carried in this and in the previous year:—

	1881-82.	1882-83.	Increase.	Decrease.
Barrels flour.....	692,095	983,916	291,821	.....
Bushels grain.....	560,253	1,195,601	635,348	.....
Lumber in feet.....	78,356,418	104,633,417	26,276,999	.....
Head of live stock....	73,479	68,338	.....	5,141
Other goods in tons...	647,561	704,608	57,047	.....

The following shows the quantity of each of the above articles carried each year for four years:—

	1879-80.	1880-81.	1881-82.	1882-83.
Barrels flour.....	525,248	672,310	692,095	983,916
Bushels grain.....	324,021	565,678	560,253	1,195,601
Lumber in feet.....	55,462,654	72,841,388	78,356,418	104,633,417
Head of live stock..	70,990	61,574	73,479	68,338
Other goods in tons	422,256	544,354	647,561	704,608

The quantity of coal carried to the Upper Provinces was over 51,000 tons, an increase of 7,000 tons over last year.

It will be observed that there is a very large increase in the quantity of lumber, grain and flour carried. It is worthy of remark, that the quantity of lumber carried has doubled since the year 1879-80, that the quantity of flour is almost double what it was in that year, and that the quantity of grain is more than three times as much as was carried in 1879-80. The decrease in live stock carried, is in the through cattle trade from the Upper Provinces to Halifax for shipment to Europe, very few cattle having been sent last winter.

The British mail steamers landed the mails and passengers in summer at Rimouski as usual and the Mail tender service there was satisfactorily performed by contract. They also landed in winter the mails, passengers and freight at Halifax as usual, and the improvements in the wharves and warehouses there enabled us to do this business with greater promptitude.

Steamers of the Dominion line and of other lines called more or less regularly and landed and received freight in connection with the railway and ocean business at Halifax has continued to show a considerable increase. It will be satisfactory to you to know that the owners of steamships frequenting the Halifax terminus have expressed their satisfaction with the improvements and extensions made there. One cargo of grain was shipped through the elevator and it was found to work rapidly and well.

There has been a large increase in the passenger traffic, the number carried during the year 1882-83 being..... 878,600

While in 1881-82 it was..... 779,994

An increase of..... 98,606

As was expected, the tourist travel continues to increase.

The number of immigrants landed at Halifax was larger than previous years.

#### EXPENDITURE.

The working expenses for the year were \$2,360,373.27

The work performed by locomotives and cars was much greater than last year.

## The engine mileage

	Miles.
In 1882-83 was.....	4,406,189
In 1881-82.....	3,900,850
Increase of.....	505,339

## The train mileage compared with last year was :—

	Miles.
1882-83.....	3,615,192
1881-82.....	3,195,566
Increase of.....	419,626

## The car mileage compared with last year was :—

	Miles.
1882-83.....	41,526,553
1881-82.....	37,489,376
Increase of.....	4,037,177

## The gross tonnage carried

	Tons.
In 1882-83 was.....	970,961
In 1881-82.....	838,956

	Cents.
The working expenses per mile, run by engines were.....	53·57
do do run by trains.....	65·29

The necessary repairs were made to the permanent way and structures, and all the works in connection with the railway were maintained in a thorough state of efficiency.

Thirty-one miles of new rails were laid in the main track, and 256,203 new sleepers. A large amount of ballasting was also done.

Eight miles of new sidings were laid at different parts of the line.

The necessary repairs were made to fences, and 112 miles of new fences were built;  $8\frac{1}{2}$  miles of new snow fences were built, and 3,500 lineal feet of snow sheds were rebuilt.

The buildings on all parts of the line received necessary repairs. Six new station houses and five new freight houses were erected, besides other buildings.

Extensive repairs and additions were also made to many station houses and freight houses.

A large new wharf was built at Dorchester.

Semaphore signals were erected at twenty-four stations.

Several new tanks have been built, and a large sum has been expended in improving the water supply.

A new and substantial steel bridge with masonry abutments was built over the Laplanche River.

The cost of all these improvements and additions, and of others which I have not specified, forms part of the working expenses.

The rolling stock has received necessary repairs and is in good order.

Six new locomotives were purchased to make good the depreciation of the stock from use, and their cost was charged to the working expenses.

Ten of the oldest and smallest locomotives, which had been replaced in this way were sold.

One hundred and forty-nine cars were condemned and replaced by new ones at the cost of working expenses.

*Stores.*

The value of stores purchased was.....	\$1,088,764 87
Of stores issued.....	1,140,641 66
Old materials sold .....	121,637 98

The value of the stores on hand at the end of the year was:—

Ordinary stores, including fuel.....	\$394,951 07
Iron and steel rails .....	125,239 41
Old material for sale.....	47,548 79

Total stores on hand..... 567,739 27

The cost of clearing snow and ice from the track is annually a very large item in the operating expenses.

In 1882-83 it was.....	\$33,974 20
Cost of repairs to ploughs and flangers.....	12,588 69
Cost of building and repairing snow sheds.....	11,419 59
Cost of building and repairing snow fences.....	7,309 56

Total cost, of fighting snow.....\$65,292 04

This does not include the cost of repairs to engines damaged when engaged in clearing the track.

Snow ploughs were run last winter 42,169, miles, being about 10,000 miles more than during the winter of 1881-82.

Although the winter of 1882-83 was severe, there was scarcely any detention of the trains on account of the weather.

Mr. James Coleman having been promoted to the position of Superintendent of the Prince Edward Island Railway, the following promotions were made on the Intercolonial Railway, Mr. Joseph J. Wallace was appointed Superintendent of the Halifax and St. John District instead of Mr. Coleman, and Mr. J. R. Bruce was appointed Traffic Auditor instead of Mr. Wallace.

These changes were made on 12th May 1883.

On the night of 10th February 1883, the general offices at Moncton were accidentally destroyed by fire.

The loss of this building has caused considerable inconvenience.

A larger building to replace it is now being constructed.

It gives me pleasure to state that in general the several officers and employes have performed their duties in a satisfactory and efficient manner.

I have the honor to be Sir,

Your obedient servant,

(Sgd.)

D. POTTINGER,

*Chief Superintendent.*

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## INTERCOLONIAL RAILWAY.

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CHIEF ENGINEER'S OFFICE,

MONCTON, N.B., 1st September, 1883.

SIR,—I have the honor to submit my Report of the working of the Engineering Department for the year ending 30th, June 1883.

### TRACK.

The mileage of the main line and branches in actual operation is the same as previously reported, 840 miles. The track is laid the whole length of the St.

Charles Branch, but there is considerable filling and ballasting to do before it can be opened for traffic.

All of the iron rails on the Shediac Branch have now been taken up and replaced with steel rails. With the exception of about two miles, which still remain, all the iron rails have been removed from the Pictou Branch and replaced with steel rails,  $31\frac{1}{2}$  miles of the old steel rails in the main line were taken up and replaced with new steel rails weighing 67 pounds to the lineal yard. These rails were laid with angle fish-plates.

#### SLEEPERS.

During the year 256,203 sleepers have been put in track.

#### BALLASTING.

Beside the ballasting done on the St. Charles Branch, the St. John yard and the New Main Line and sidings at Halifax, each trackmaster has had during the working season a train and a gang of men engaged in ballasting his division.

#### SIDINGS.

Additional siding accommodation has been provided to the extent of 42,766 feet or about eight miles.

Many of the sidings in Moncton yard have been extended and thoroughly rearranged, at very large outlay, to facilitate the shunting and making up of trains.

#### SEMAPHORE SIGNALS.

New semaphore signals were erected at the following stations, Bedford, Milford, Truro, Belmont, Debert, Tolly Lake, Westchester, Moncton, Canaan, Weldford, Rogersville, Beaver Brook, Bartibogue Station and tank, Red Pine station and tank, Bathurst tank, Petite Roche, Belledune, New Mills, Charlo, Sayabec, Cedar Hall and Isle Verte; and distance semaphore signals were put up at New Glasgow, on the old main line and new main line, Richmond. An expenditure of about \$10,000 has been made upon this service.

#### SNOW SHEDS AND FENCING.

3,500 feet of snow shedding has been renewed at a cost of \$7,000.

$8\frac{1}{2}$  miles of new snow fencing were erected at a cost of \$11,000.

In addition to the ordinary repairs to fences 106 miles of new barbed wire fencing, and  $6\frac{1}{4}$  miles of pole fencing were erected at a cost of about \$32,000.

In building the barbed wire fence this year, the posts are placed 12 feet centres instead of  $16\frac{1}{2}$  as formerly, and a  $5 \times 1\frac{1}{2}$  inch rail is put on in place of the top wire.

This makes a much better and safer fence, but also adds considerably to the cost.

#### TURNTABLES.

In the rearrangement of the yard at Moncton, a new 30 feet iron turntable was put in at the rear of the machine shop to take the place of an old wooden table near the centre of the yard, which it was necessary to remove to make room for additional sidings.

#### WHARVES, &c.

The coal bunker wharf at the new Deep Water terminus, Halifax, referred to in my report of last year, has been completed.

The old coal wharf at Dorchester was entirely rebuilt, and an addition made to it 300 feet long by 32 feet wide, at a cost of \$8,648.58.

The wharves at Richmond, Pictou Landing, and Point du Chêne received extensive repairs. In the current year a very large expenditure will have to be made on the crib wharf at Richmond.

The coal trestle upon this wharf will require to be entirely renewed.

## BUILDINGS AND PLATFORMS.

The grain elevator of 150,000 bushels capacity, referred to in my report of last year, has been completed, and works very satisfactorily.

New platforms have been erected at Windsor Junction, Shubenacadie, Brookfield, Stellarton, Thompson, Oxford, River Philip and Spring Hill.

A high level coal shed 300 feet long by 50 feet wide, with an inclined trestle approach 700 feet long, was erected at Richmond.

A new station was erected at Windsor Junction, at an expenditure of \$3,000.

New stations were erected at Debert, East Minas and Spring Hill.

The latter was a first-class station, and cost \$1,200.

Wentworth and Greenville stations were enlarged and remodelled at an expenditure of about \$800 each. A new freight house was also built at Greenville.

Shubenacadie and River Philip stations were reshingled and necessary repairs were made upon many of the stations between Halifax and Amherst.

New stations were erected at Bloomfield and at Model Farm. The station at Bloomfield is very much larger than the old one destroyed by fire.

The coal sheds at the Deep Water Terminus, St. John, and in St. John yards, referred to in my report of last year, have been completed, and have been in use for the past six months.

The brick warehouse, &c., in St. John yard, and referred to in my report of last year, are completed and have been occupied since January last.

The bulk of the grading for the re-arrangement of the tracks in the yard has been done, and a new brick station is now in course of erection.

The station (or head house) is 114 feet long by 28 feet wide, three stories high, and the train shed to the rear is 500 feet long by 82 feet wide, with baggage rooms at either end 100 feet long by 15 feet wide.

New platforms have been erected at Dorchester, Painsec, Salisbury, Pullet River, Petitcodiac, Hayward's, Penobsquis, Bloomfield, Norton, Namwigewauk, Model Farm and St. John.

Considerable repairs have been put upon the following stations: Painsec, Moncton, Shediac, Anagance, Penobsquis, Sussex and Passekeag.

A new boiler shop 106 by 36 feet, and a new oil store 48 by 30 feet, were built at Moncton.

An old tenement house at the west end of Moncton yard was thoroughly overhauled and converted into a dwelling for the night policeman.

A new floor and brick engine pits were put in the Round House at St. John.

Large repairs were made to the floors and pits of engine house and machine shop at Moncton.

An addition of 17 by 30 feet was made to the station at Petite Roche.

New freight houses, each 60 feet long by 25 feet wide, were erected at the following places—Rogersville, Petite Roche, New Mills, and Jacquet River.

An addition of 60 feet was also made to the freight house at Campbellton.

A high level coal shed, 500 feet long by 25 feet wide, with a trestle approach 800 feet long was erected at Campbellton; also a hoisting house for same (60 feet long) at the end of the trestle.

New loading platforms carrying in length from 60 to 210 feet were erected at Coal Branch, Adamsville, Rogersville, Chatham Junction, Newcastle, Bartibogue and Jacquet River.

Considerable repairs were made to the coal trestle at Newcastle; also to the Ste. Flavie engine house.

The iron girders of the latter were scraped and painted.

A new tank house was erected at Bathurst.

The roofs of Berry's Mills, Barnaby River, Newcastle and Bathurst Stations were re-shingled.

Ste. Flavie and St. Simeon Stations were filled with saw-dust between the exterior walls, and the former was painted.

The old brick station at Rivière du Loup was re-built and enlarged.

The freight house at Ste. Alexandre was fitted up for a temporary station in place of the brick station destroyed by fire.

A new station is now being erected at that place.

Tool houses were built at River Ouelle and Trois Saumons.

A portion of the platform at Chaudière Junction was roofed over for the protection of baggage from the weather.

The coal trestles at Chaudière and Rivière du Loup were closed in, and provisions made for the storage of a large quantity of coal.

#### IRON BRIDGES.

The iron bridge carrying Water street over the railway at Halifax was raised  $3\frac{1}{2}$  feet, to give the necessary headway required by law, and widened 13 feet to admit of a double track being laid.

The wooden aboisdeau at La Planche River, near Amherst, was replaced with a new steel bridge of 80 feet span, with abutments of ashlar masonry. Two iron spans of 15 feet each were put in between Dorchester and Memramcook.

A new iron overhead bridge, with a central span of 80 feet, and two side spans, of 21 feet each, was erected near Quispamsis.

An iron span of 18 feet was put in near Trois Pistoles.

The improved close floor has been put in the following bridges: Millstream Gondola Point, Trois Pistoles, L'Islet, St. Ann's, South St. Thomas, Boyer and Etchemin.

Two gangs of painters, and a gang of rivetters were engaged in scraping, painting and rivetting on the iron bridges north of Moncton nearly the whole of the working season.

#### CATTLE GUARDS AND CULVERTS.

Fifty-six timber cattle guards were renewed in various parts of the line.

A gang of masons was engaged three months in repairing the old culvert.

Necessary pointing and repairs were made to the bridge masonry over the whole line.

#### WATER SERVICE.

The traffic of the road is now so large and the trains running so close after one another, that many of the old tank tubs do not hold sufficient water to supply the large number of engines calling.

On the division between Moncton and Campbellton particularly so much difficulty was experienced on this account for a few weeks in the driest time in winter, that it was necessary to put up three large temporary tanks, one at Buctouche River, one at Bathurst, and one at Charlo.

New tanks were also put up at Elmsdale, Greenville, St. Simon and Isle Verte.

During the current year, on the division between Moncton and Campbellton, it is proposed to provide four additional large tanks with a capacity of from 20,000 to 50,000 gallons each, filled with Knowle's steam pumps; and also two others of the same capacity on the division between Ste. Flavie and Hadlow.

The permanent way throughout the whole line is in good order.

I am, Sir,

Your obedient servant,

P. S. ARCHIBALD.

*Chief Engineer.*

D. POTTINGER, Esq.,

Chief Superintendent, Moncton, N.B.

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INTERCOLONIAL RAILWAY.

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MECHANICAL SUPERINTENDENT'S OFFICE,

MONCTON, N.B., 22nd October, 1882.

DEAR SIR,— I beg to submit for your information the following statements showing the operations of the Mechanical Department, for the year ending 30th June, 1883.

A.—Statement showing the number of locomotives and the various classes of cars.

B.—Statement showing the locomotive and car mileage and the average number of passenger and freight cars hauled per mile run by engines.

C.—Abstract of locomotive returns.

D.—Statement shewing the cost of locomotive power for each month during the year.

E.—General statement of the expenses of the Mechanical Department.

During the year four new locomotives were purchased and charged to Working Expenses.

Seventy-five hopper cars were condemned and taken off the register.

Two locomotives, two second-class cars, seventy box and platform, and two gondolas to replace an equal number condemned, and twenty-five gondolas to replace the seventy-five hopper cars, were built at the cost of Working Expenses.

Ten of the oldest locomotives which had been replaced by new were this year sold.

Twenty locomotives, one first class car, ten second, twenty box freight, two hundred and ten platform, four hundred and ten gondolas and six vans were received on the road, on account of Capital.

The rolling stock is in good condition.

I am, Sir,

Your obedient servant,

H. A. WHITNEY,

*Mechanical Superintendent.*

D. POTTINGER, Esq.,

Chief Superintendent, Intercolonial Railway.

## A.—INTERCOLONIAL RAILWAY.

STATEMENT showing the number of Locomotives and the various classes of Cars on the 1st July, 1882, and on the 30th June, 1883.

The Various Classes of Cars.															
Locomotives.	First Class Passenger.	Second Class Passenger.	Postal and Smoking.	Baggage and Express.	Vans.	Box Freight.	Cattle.	Platform—10, 15 and 20 Tons.	Hoppers—5 Tons.	Gondola—20 Tons.	Total.	Snow Ploughs.	Wing Ploughs.	Flangers.	Total.
On hand, 1st July, 1882, serviceable.....	51	41	15	20	44	1393	72	1161	670	348	3815	28	9	18	55
do do condemned.....	.....	.....	.....	.....	1	14	.....	.....	.....	.....	15	.....	.....	.....	.....
Total.....	51	41	15	20	45	1407	72	1161	670	348	3830	28	9	18	55
Purchased on account of Capital.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do do working expenses.....	1	10	.....	.....	.....	20	.....	210	.....	40	.....	.....	.....	.....	.....
Built at Moncton works, on account of Capital.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sold—replaced by new.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Condemned—replaced by Gondolas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, 30th June.....	52	51	15	20	51	1427	72	1371	595	783	4437	28	9	18	55
Condemned on hand, 1st July.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Condemned during the year.....	.....	3	.....	1	1	12	2	53	75	2	148	.....	.....	.....	.....
Less—Rebuilt.....	2	3	.....	1	.....	26	2	53	75	2	163	.....	.....	.....	.....
	2	2	2	.....	.....	20	.....	50	Gonds	2	149	.....	.....	.....	.....
Add—Serviceable and repairing.....	.....	1	.....	1	1	6	2	3	.....	.....	14	.....	.....	.....	.....
Total on record.....	52	50	15	19	50	1421	70	1368	595	783	4423	28	9	18	55
	52	51	15	20	51	1427	72	1371	595	783	4437	28	9	18	55

\* Deduct.

\*Deduct.

## B.—INTERCOLONIAL RAILWAY.

## STATEMENT of Locomotive and Car Mileage for Year ending 30th June, 1883.

Months.	Locomotive Mileage.		Car Mileage.						Average.		Snow Ploughs.	
	Pas- senger.	Freight.	1st Class.	2nd Class.	Express, Postal and Baggage.	Box and Stock.	Platform and 8-wheel Coal	Hoppers.	Total.	Pas- senger.		Freight.
B.												
1882—July.....	68,435	187,649	235,838	115,915	148,237	1,801,069	511,713	95,357	3,008,129	7·30	13·36	.....
August....	72,658	186,131	265,231	128,262	147,266	1,674,075	782,200	100,993	3,098,027	7·45	13·00	.....
September	68,064	202,282	239,610	126,082	145,635	1,837,433	773,214	81,920	3,203,894	7·51	13·31	.....
October...	65,674	221,234	206,306	120,714	147,366	2,108,603	863,853	82,186	3,534,028	7·24	13·83	.....
November	68,277	223,088	201,481	129,216	148,810	2,146,078	790,813	89,702	3,506,100	7·02	13·60	1,198
December.	66,786	233,366	193,124	120,067	143,654	2,068,295	720,634	109,465	3,360,239	6·91	12·42	6,991
1883—January..	69,354	235,750	187,628	124,879	141,795	1,710,686	833,735	100,444	3,099,167	6·50	11·22	7,936
February..	63,622	240,902	167,181	110,329	126,370	1,914,364	932,354	107,748	3,381,346	6·24	12·39	11,781
March .....	69,049	278,097	181,672	126,227	142,935	2,270,224	1,110,327	166,414	3,997,799	6·52	12·75	14,231
April. ....	70,644	265,787	199,789	156,011	142,001	2,204,287	1,484,835	123,336	4,310,259	7·04	14·34	.....
May .....	69,382	266,566	201,628	137,934	149,343	2,241,048	1,274,202	71,321	4,075,476	7·04	13·98	42
June. ....	75,695	176,219	206,281	131,564	152,580	1,641,514	764,746	55,614	2,952,089	6·47	13·97	.....
Total ...	827,640	2,717,091	2,483,769	1,526,990	1,735,992	23,647,676	10,917,626	1,184,500	41,526,089	6·94	13·16	42,169

## C.—INTERCOLONIAL RAILWAY.

## ABSTRACT of Locomotive Returns for Year ending June 30th, 1883.

Months.	Hours in Steam.	Locomo- tive Mileage.	Consumption.				Average Consumption per 100 Miles.				
			Tons of Coal.	Pints of Oil.	Lbs. of Tallow.	Lbs. of Waste.	Miles to hour in Steam.	Lbs. of Coal.	Pints of Oil.	Lbs. of Tallow.	Lbs. of Waste.
1882—July .....	29,333	314,435	7,482	18,291	9,635	5,390	10.71	53.30	5.81	3.08	1.71
August.....	30,524	329,686	7,527	18,109	9,846	5,398	10.80	51.14	5.49	3.04	1.51
September.....	31,103	330,773	7,950	18,647	9,363	5,233	10.63	53.83	5.63	2.83	1.58
October .....	32,884	347,254	9,153	23,309	7,875	5,562	10.55	59.04	6.71	2.26	1.60
November .....	33,936	354,487	9,884	23,008	8,620	5,630	10.44	62.73	6.49	2.43	1.58
December.....	37,456	375,310	10,483	23,001	10,166	5,962	9.96	62.90	6.16	2.71	1.59
1883—January.....	39,268	390,243	10,705	23,249	10,529	6,189	9.84	61.44	5.95	2.72	1.58
February.....	41,057	389,723	11,168	24,915	11,919	6,209	9.49	64.19	6.39	3.06	1.59
March.....	47,290	445,856	12,814	31,031	14,153	7,427	9.42	64.43	6.95	3.15	1.66
April.....	41,676	419,470	10,603	26,179	12,230	6,693	10.06	56.62	6.24	2.91	1.59
May.....	39,184	400,372	9,301	24,501	11,530	6,266	10.21	52.03	6.11	2.87	1.56
June .....	29,613	310,600	6,650	19,807	9,455	5,507	10.49	47.95	6.37	3.04	1.77
Total.....	433,684	4,406,189	113,720	274,047	125,231	71,473	10.16	57.81	6.21	2.86	1.62

## D.—INTERCOLONIAL RAILWAY.

STATEMENT of the cost of Locomotive Power for each month, from 1st July, 1882, to 30th June, 1883.

Months.	Miles run by Engines.	Drivers' and Fire-men's Wages.	Fuel.	Oil, Tallow and Waste.	Repairs to Engines, Tenders and Tools.	Water.	Miscellaneous, including Engine houses and Staff.	Total.	Average per 100 Miles.					
									Wages.	Fuel.	Oil, Tallow and Waste.	Repairs.	Water.	Miscellaneous.
		\$	\$	\$	\$	\$	\$	\$	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1882—July.....	314,435	12,873 59	18,534 16	2,978 04	15,308 78	147 13	3,161 74	53,603 74	4 09	5 89	0 94	4 88	0 24	1 00
August.....	326,666	13,193 01	19,748 52	3,041 52	12,218 31	2,180 65	3,360 35	53,742 36	4 00	6 02	0 92	3 70	0 64	1 02
September.....	330,773	12,943 26	20,981 25	3,111 99	13,439 47	2,093 15	3,484 88	56,054 00	3 92	6 34	0 91	4 06	0 63	1 05
October.....	347,554	13,379 76	24,219 74	3,471 53	18,725 52	1,870 44	4,637 52	66,304 51	3 85	6 37	1 00	5 40	0 54	1 33
November.....	354,487	14,522 20	27,168 70	3,676 87	20,585 80	2,302 80	7,331 58	75,637 95	4 10	7 66	1 04	5 81	0 65	2 08
December.....	373,310	15,480 07	29,430 28	4,049 09	14,333 51	3,438 77	6,952 79	73,684 51	4 14	7 88	1 09	3 84	0 92	1 86
1883—January.....	390,243	16,523 64	29,925 10	4,044 93	8,745 63	2,535 93	5,666 13	66,441 36	4 05	8 11	1 12	2 14	0 80	1 45
February.....	389,723	15,784 79	31,607 82	4,379 68	8,330 68	3,115 52	5,405 07	68,623 86	4 08	8 25	1 22	2 16	0 99	1 21
March.....	445,856	18,191 63	36,782 41	5,457 53	18,517 53	4,431 66	5,407 70	88,788 36	3 79	5 76	1 03	2 87	0 38	0 77
April.....	419,470	15,893 92	24,158 19	4,243 47	12,052 17	1,570 78	3,257 49	61,256 02	3 82	5 32	0 81	1 93	0 45	0 83
May.....	400,372	15,291 15	21,293 08	3,253 37	7,714 47	1,835 39	3,303 84	52,691 30	3 82	5 32	0 81	4 92	0 40	1 06
June.....	310,600	12,709 56	15,047 51	2,672 11	15,261 76	1,243 04	3,301 00	50,234 93	4 08	4 85	0 86	4 92	0 40	1 06
Total .....	4,406,189	175,786 58	298,896 76	44,460 13	165,233 63	27,365 46	55,320 09	767,062 65	3 98	6 78	1 00	3 75	0 59	1 25
Engine miles .....	4,406,189													
Train do .....	3,615,192													
Light.....	62,716													
Shunting.....	728,281													

## E—INTERCOLONIAL RAILWAY.

GENERAL STATEMENT of the Expenses of the Mechanical Department, for  
the Year ending 30th June, 1883.

The miles run by trains were.....	3,615,192
do engines were.....	4,406,189
do cars were.....	41,526,553
do snow ploughs were.....	42,169
The cost of locomotive power.....	\$ cts. 767,062 65
The cost of repairs:	
Repairs to passenger cars.....	55,289 05
do postal, express and baggage cars.....	16,209 23
do freight cars and vans.....	178,706 45
Oil and waste for packing.....	26,724 95
Miscellaneous.....	1,443 69
The cost of locomotive power per 100 miles run by trains was.....	21 21
do do do engines.....	17 40
do do do cars.....	1 84
The cost of repairs to cars per 100 miles by train.....	6 92
do do engines.....	5 67
do do cars.....	0 60
The cost of oil and waste for packing per 100 miles by train.....	0 73
do do engines.....	0 60
do do cars.....	0 06
The cost of repairs to passenger cars per 100 miles run by them.....	1 37
do postal, express and baggage do.....	0 93
do freight cars and vans do.....	0 49



## No. 2.—INTERCOLONIAL RAILWAY.

## REVENUE ACCOUNT, Year ending 30th June, 1883.

DR.

CR.

Previous Year.	Expenditure.	Year ending 30th June, 1883.	Previous Year.	Earnings.	Year ending 30th June, 1883.
\$		\$	\$		\$
cts.		cts.	cts.		cts.
634,191 41	Locomotive power	767,062 65	651,296 94	Passenger traffic.....	741,992 72
469,331 23	Car expenses	508,187 86	1,303,495 00	Freight do .....	1,487,601 98
476,134 17	Maintenance way and works do	582,638 91	124,470 72	Mails and sundries.....	141,326 40
270,355 70	Station expenses do	313,496 98			
162,134 29	General charges do	167,933 84			
7,510 68	Car mileage .....	21,053 03			
	Balance .....	2,360,373 27			
2,069,657 48		10,547 83			
9,605 18					
2,079,262 66		2,370,921 10	2,079,262 66		\$2,370,921 10

THOS. J. WILLIAMS,

Chief Clerk and Accountant.

MONCTON, N.B., 30th June, 1883.

## No. 3—INTERCOLONIAL RAILWAY.

## LOCOMOTIVE POWER.—(Abstract No. 2)

Previous Year.		Year ending 30th June, 1883.
\$ cts.		
6,401 77	Mechanical Superintendent's salary, Clerk's Office and Travelling expenses	7,475 16
148,699 57	Wages, Drivers, Firemen and Cleaners.....	175,786 58
241,691 09	Fuel.....	298,896 76
34,565 53	Oil, tallow, waste and small stores.....	44,460 13
192,289 71	Repairs to engines, tenders and engine tools .....	165,233 63
24,563 19	Water, including pump and tank repairs....	27,365 46
35,990 55	Miscellaneous.....	47,844 93
684,191 41		767,062 65

THOS. J. WILLIAMS,

*Chief Accountant and Treasurer.*

MONCTON, N.B., 30th June, 1883.

## No. 4.—INTERCOLONIAL RAILWAY.

## CAR EXPENSES.—(Abstract No. 2)

Previous Year.		Year ending 30th June 1882.
\$ cts.		
45,527 06	Repairs to passenger cars.....	55,289 05
18,435 27	do postal, express and baggage cars.....	16,209 23
179,061 92	do freight cars and vans.....	178,706 45
142,202 34	Wages of Conductors, Train Baggage Masters and Brakesmen.....	167,755 27
21,378 52	Oil and waste for packing.....	26,724 95
47,313 70	Small stores and fuel.....	48,786 21
15,412 42	Miscellaneous.....	14,716 70
469,331 23		\$508,187 86

THOS. J. WILLIAMS,

*Chief Accountant and Treasurer.*

MONCTON, N.B., 30th June, 1883.

## No. 5.—INTERCOLONIAL RAILWAY.

## MAINTENANCE OF WAY AND WORKS—(Abstract No. 3.)

Previous Year.		Year ending 30th June, 1883.
\$ cts.		\$ cts.
7,798 82	Engineer's salary, Clerks, Office and Travelling expenses.....	5,206 55
278,009 42	Wages in repairing Roadway, Fences and Semaphores, including new Sidings laid in.....	297,305 24
16,692 38	Rails and Fastenings, including new Sidings laid in .....	47,800 95
44,729 08	Sleepers.....	64,519 20
21,114 77	Timber, Lumber, etc., for repairs to Bridges, Cattle-guards, Crossings, Snow-sheds, Fences, etc.....	39,151 35
3,679 21	Repairs to Wharves ..	11,749 53
46,148 95	Repairs to Buildings and Platforms, including extension of and additions to same.....	67,503 78
14,301 69	Repairs to Snow Ploughs, Flangers and Tools.....	12,588 69
38,047 34	Clearing Ice and Snow.....	33,974 20
3,312 51	Miscellaneous .....	2,839 42
476,134 17		582,638 91

THOS. WILLIAMS,  
Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1883.

## No. 6.—INTERCOLONIAL RAILWAY.

## STATION EXPENSES—(Abstract No. 4.)

Previous Year.		Year ending 30th June, 1883.
\$ cts.		\$ cts.
209,309 73	Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage Masters, Yard Masters, Switchmen, Watchmen and Laborers .....	243,760 22
61,045 97	Fuel, Oil, Light, Stationery, Tickets and other incidental expenses.....	69,736 76
.....	Miscellaneous.....	.....
270,355 70		313,496 98

THOS. WILLIAMS,  
Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1883.

## No. 7.—INTERCOLONIAL RAILWAY.

## GENERAL CHARGES—(Abstract No. 5)

Previous Year.		Year ending 30th June, 1883.
\$ cts.		\$ cts.
55,791 08	Chief Superintendent, District Superintendents, Train Despatchers, and the General Freight Agent, General Passenger Agent, Clerks, Office and Travelling expenses.....	68,120 15
20,618 04	Accounting Department, salaries of the Treasurer, Traffic Auditor, Paymaster, Cashier, Clerks, Office and Travelling expenses.....	20,380 15
14,527 95	Damages to men, animals, and goods.....	13,360 85
23,087 76	Ferry service.....	20,620 49
2,561 07	Telegraph expenses (not including pay to operators).....	1,215 00
29,887 50	Miscellaneous, printing, advertising, etc.....	32,053 59
15,660 89	Agency expenses.....	12,183 61
162,134 29		167,933 84

THOS. WILLIAMS,

*Chief Accountant and Treasurer.*

MONCTON, N.B., 30th June, 1883.



## No. 9.—INTERCOLONIAL RAILWAY.

DR.

GENERAL BALANCE, 30th June, 1883.

CR.

	\$	cts.	\$	cts.	\$	cts.
Cash.....	394,981	07	16,392	77	Dominion Account.....	857,295 62
General Stores—	125,239	41			Suspense Account.....	3,463 25
Ordinary stores, including fuel.....	47,548	79			Chatham Branch Railway.....	537 09
Iron and Steel Rails, &c.....					Quebec Central Railway.....	659 58
Old materials for sale.....					Grand Trunk Railway, traffic account.....	9,870 08
Stations.....			567,739	27		
Acadia Coal Co.....			81,630	13		
Intercolonial Coal Co.....			4,250	16		
Spring Hill Coal Co.....			2,397	69		
Vale Coal Co.....			1	12		
Intercolonial Express Co.....			2,473	92		
Rents.....			2,609	75		
Steel Company of Canada.....			2,725	04		
Spring Hill and Parsboro' Railway.....			26,567	08		
Western Counties Railway, general account.....	15,893	35	3,161	99		
do	1,657	42				
Grand Trunk Railway, general account.....			17,550	77		
Albert Railway.....			4,998	55		
Windsor Branch Railway.....			2,157	80		
Windsor and Annapolis Railway, old account.....	6,684	46	4,602	98		
do	1,053	05				
Prince Edward Island Railway.....			7,737	51		
St. Martins and Upham Railway.....			648	18		
Elgin Branch Railway.....			4,107	39		
Kent North-Western Railway.....			726	10		
Canada Pacific Railway, old account.....			161	96		
Central Vermont Railway.....			185	90		
Oxford Branch Railway.....			28	00		
Toronto, Grey and Bruce Railway.....			12,324	80		
Canadian Pacific Railway Co.....			19	00		
Credit Valley Railway.....			1,954	71		
Halifax and Cape Breton Railway.....			4	00		
Accidental Insurance.....			1,596	85		
Prince Edward Island Steam Navigation Co.....			3,044	15		
Coldbrook Mills.....			187	94		
Halifax Rolling Mills.....			1,967	41		
			81	49		

Moncton Sugar Refining Co.....	5,169 44
Nova Scotia Government.....	280 45
Halifax Cotton Co., siding .....	11,092 03
Unclaimed freight .....	97 83
Moncton Cotton Co., siding .....	765 53
Pullman Palace Car Co. ....	71 26
Kingston Car Co. ....	256 44
Canadian Locomotive and Engine Co. ....	694 78
National Despatch Line .....	2 00
Steamer "Admiral" and owners .....	1,460 87
Western Union Telegraph Co.....	960 50

## DEPARTMENTAL ACCOUNT.

Post Office .....	40,077 44
Militia .....	1,203 90
Agriculture .....	6,340 61
Marine and Fisheries. ....	960 81
Dorchester Penitentiary .....	2 82
Individual Accounts .....	48,585 88
	28,354 11
	<u>\$871,825 62</u>

\$871,825 62

MONCTON, N.B., 30th June, 1883.

THOS. WILLIAMS,  
*Chief Accountant and Treasurer.*

## No. 10.—INTERCOLONIAL RAILWAY.

COMPARATIVE STATEMENT of Averages, Year ending 30th June, 1883.

	1883.	1882.
Mileage of railway.....	840	840
Engine mileage.....	4,406,189	3,900,850
Train do .....	3,615,192	3,195,566
Cars do .....	41,526,553	37,489,376
	\$ cts	\$ cts.
Receipts per engine mile.....	53 81	53 30
do mile of railway .....	2,822 52	2,475 31
	Per cent.	Per cent.
Percentage of passenger earnings to gross earnings.....	31·30	31·32
do freight do .....	62·74	62·69
do other do .....	5·96	5·99
Expenses per engine mile—		
Drivers', Firemen's and Cleaner's wages .....	3·99	3·81
Fuel .....	6·78	6·20
Oil, tallow, waste and small stores.....	1·01	0·89
Repairs to engines.....	3·75	4·93
Water and tank repairs.....	0·62	0·63
Miscellaneous .....	1·09	0·92
Total.....	17·24	17·38
Mechanical Superintendent's salary, office and travelling expenses.....	0·17	0·16
	17·41	17·54
Locomotive power per engine mile.....	17·41	17·54
Car expenses do .....	11·53	12·03
Maintenance of way and works do .....	16·22	12·21
Station expenses do .....	7·12	6·93
General charges do .....	3·81	4·15
	53·09	52·86
Car mileage.....	0 48	0·19
Total per engine mile.....	53·57	53·05
Locomotive power per train mile.....	21·22	21·41
Car expenses do .....	14·06	14·69
Maintenance of way and works do .....	16·12	14·90
Station expenses do .....	8·67	8·46
General charges do .....	4·64	5·07
	64·71	64·53
Car mileage.....	0·58	0·24
Total per train mile.....	65·29	64·77
Working expenses per mile of railway.....	\$2,809 97	\$2,463 88

THOS. WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1883.

## RETURN OF ACCIDENTS AND CASUALTIES.

## INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred in Canada  
30th June,*(This Return is made up in compliance with the provisions*

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
<b>1882.</b>						
<b>July 1...</b>	1.10 p.m.	31	Accommodation.	A. Armstrong.....	J. Scott.....	43
<b>do 6...</b>	5.20 a.m.	.....	Working.....	A. MacPherson.....	A. McCabe .....	30
<b>do 21...</b>	4.15 a.m.	.....	Special.....	M. Cummings.....	F. McManus .....	8
<b>do 27...</b>	1.40 p.m.	.....	do .....	R. F. Rutherford.....	E. Blair.....	72
<b>do 28...</b>	4.00 p.m.	.....	Shunter .....	.....	R. James.....	100
<b>Aug. 10...</b>	10.30 a.m.	.....	do .....	.....	Geo. Sears.....	27
<b>do 9...</b>	2.20 p.m.	.....	Special.....	Wm. Ross .....	P. O'Donnell .....	123
<b>do 12...</b>	6.30 a.m.	.....	Shunter .....	.....	W. McLean.....	94
<b>do 12...</b>	7.10 p.m.	.....	do .....	.....	W. Bastin .....	13
<b>do 19...</b>	7.50 p.m.	.....	Freight .....	R. A. Rainnie.....	J. Irvine.....	46
<b>do 17...</b>	5.10 p.m.	.....	Special .....	A. E. Brown.....	John Donald.....	118
<b>do 22...</b>	11.00 a.m.	15	Freight .....	J. Berry .....	A. Donald... ..	108
<b>do 25...</b>	10.45 a.m.	.....	Special.....	G. Margeson.....	G. Feetham.....	4
<b>Aug. 23...</b>	6.25 p.m.	.....	Ballast .....	J. Huppe .....	C. Jolivette .....	34
<b>do 30...</b>	10.30 p.m.	.....	Special .....	G. Margeson.....	.....	126
<b>Sept. 1...</b>	5.17 p.m.	36	Accommodation.	D. D. Brownell .....	R. Bulmer .....	40
<b>do 1...</b>	5.17 p.m.	.....	Special .....	N. Merrill .....	T. Chilton.....	49
<b>do 13...</b>	7.00 p.m.	.....	do .....	J. Coffey.....	G. A. Kantly .....	128
<b>do 14...</b>	.....	.....	.....	.....	.....	.....

## RAILWAY.

on the Line of the Intercolonial Railway, during the Year ending 1883.

*of the Railway Act of 1868, 31 Vic., cap. 68, sec. 43.)*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Ste. Luce.....	J. Damour.....	Employé..	While uncoupling engine from train.	Hand smashed	
Newcastle'.....	A. McCabe .....	do ...	While tightening some of the nuts under the engine.	Finger broken.	
Bathurst .....	J. Halloran .....	do ...	Fell from cars.....	Leg broken....	
Londonderry....	Jos. Kennedy ..	do ...	While uncoupling engine from train.	First joint of finger taken off.	
St. John.....	Saml. Ritchie..	do ...	Slipped from footboard of engine.	Leg broken....	
Campbellton ....	Frank Sears ....	do ...	While coupling engine to a car.	Three fingers on left hand badly cr'shd	
One mile west of Hopewell.	— Baird. ....	do ...	Engine ran over leg while endeavoring to remove hand-car off track.	Foot taken off.	
Moncton.....	B. Myrshall....	do ...	While coupling cars.....	Finger crushed	
Rivière du Loup.	— Moreauseau..	du ...	do .....	Finger jammed	
Painsec .....	G. H. Laskey...	do ...	do .....	Arm jammed..	
One mile east of Bloomfield.	Miss Floyd .....	Neither....	While walking on track, was struck by train.	Killed .....	Accidental.
Spring Hill .....	John Carroll...	Employé..	While coupling engine to a car.	Slightly jam'd	
Drummond .....	P. Kelly.....	do ...	While running after train	Ankle sprain'd	
St. Charles Branch.	J. Huppe.....	Employé..	Four cars ran off track, on one of which he was standing.	Badly bruised.	
Truro .....	.....	do ...	While coupling engine to train.	Arm bruised...	
Weldford . ....	Jos. Delahunty	do ...	Merrill's special ran into No. 36 train.	Fatal .....	Accidental.
Petitcodiac .....	H. Kennedy ...	Passenger	Fell from train while in motion.	do .....	do
Belmont .....	Allan Dykeman	Neither...	Fell into a cattle-guard...	do .....	do

## INTERCOLONIAL

## RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1882.						
Aug. 19...	9.50 p.m.	35	Accommodation.	J. Hartenstein .....	W. Bastin .....	20
do 21...	1.30 a.m.	5	Freight .....	W. J. Campbell .....	J. J. Irvine .....	62
do 21...	7.30 a.m.	.....	Shunter ..	.....	R. James .....	100
do 21...	2.30 p.m.	.....	do .....	.....	J. McLellan .....	93
do 28...	10.40 a.m.	.....	Special .....	W. K. Reynold .....	H. Stewart .....	122
Oct. 4...	10.15 a.m.	.....	do .....	J. McNaughton .....	J. McAuley .....	121
do 4...	10.00 p.m.	32	Express .....	A. McLellan .....	Robt. Dunbar .....	66
do 4...	12.30 p.m.	.....	Special .....	R. F. Rutherford .....	Geo. Feetham .....	4
do 4...	8.05 p.m.	35	Freight .....	W. Sprague .....	.....	.....
do 6...	11.00 p.m.	.....	Working .....	N. L. Letarte .....	J. McIntyre .....	22
do 6...	11.00 p.m.	.....	Special .....	R. F. Rutherford .....	T. Hanway .....	81
do 7...	8.30 a.m.	.....	do .....	J. Casey .....	J. Cook .....	49
do 7...	10.30 a.m.	2	Express .....	Geo. Trueman .....	J. Stewart .....	70
do 8...	2.30 p.m.	.....	Shunter .....	.....	— Sears .....	8
do 9...	2.20 a.m.	.....	do .....	.....	J. W. Boyd .....	11
do 10...	1.00 a.m.	.....	Ballast .....	J. McNaughton .....	H. M. Stewart .....	122
do 26...	.....	.....	.....	.....	.....	.....

## RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Moffatts .....	George Duff....	Passenger.	Got off train on head of tide-bridge, and fell off.	Badly hurt.....	
Sussex.....	H. McAndrews.	Employé..	Slipped and fell off cars while in motion.	Fatal .....	do
St. John.....	W. J. Campbell	do ...	While walking on track was struck by cart being shunted.	Badly bruised about head & shoulders.	
Richmond .....	Robt. Murray...	do ...	While standing on track was struck by cars.	Fatal .....	do
One mile east of Athol.	Walter Welling	do ..	Fell between cars while walking over train, and rolled down the embankment.	Badly bruised about body.	
Memramcok .....	T. Tarnio .....	do ...	Attempting to jump on train while in motion, fell, and wheel passed over him.	Foot and arm badly smashed.	
Bathurst.....	D. McLeod .....	Passenger	Cut his throat with a razor.	Not fatal .....	
Albion Siding ...	A. Wright .....	Employé ..	While coupling cars.....	Thumbjamm'd	
Dalhousie .....	O. Crossman ...	do ...	Struck by train while walking or standing on track.	Fatal .....	No inquest held.
Millstream.....	F. Lortie .....	do ...	While coupling cars.....	Hand crushed..	
Shubenacadie ...	Peter Kelly.....	do ...	do .....	Finger crushed slightly.	
Spring Hill .....	E. C. Thompson	do ...	While coupling engine to car.	End of little finger taken off.	
Petitcodiac .....	H. Bakkirk .....	Neither....	While attempting to cross track in front of engine	Fatal .....	Accidental.
Campbelltown ...	K. Fraser .....	Employé..	While coupling cars.....	Hand jammed and 3 fingers taken off.	
Truro .....	W. A. Dickson.	do ...	Foot caught in frog while coupling cars.	Leg badly injured.	
Boundary Creek.	S. Hillson .....	do ...	Ballast train run into by No. 12 train.	Slightly hurt ..	
Walker's ballast pit.	C. McCarthy....	Employé..	While shovelling earth, the bank gave way and struck him.	Leg broken.....	

## INTERCOLONIAL

## RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1882.						
Oct. 15...	2.35 a.m.	.....	Special.....	E. P. Benoit .....	J. H. Levey.....	21
do 17...	5.00 p.m.	.....	Shunter.....	.....	A. White .....	94
do 19...	7.50 p.m.	.....	Ballast.....	S. Bellemare.....	R. Findlay.....	34
do 19...	11.00 a.m.	.....	Working.....	L. N Letarte .....	W. Bastin.....	41
do 19...	5.00 p.m.	35	Freight .....	J. S. McGinn .....	B. Lutes.....	86
do 21...	8.20 a.m.	.....	Special.....	E. L. Watts.....	S. Watson.....	54
do 21...	12.50 p.m.	.....	do .....	C. A. Atkinson .....	E. S. White. ....	45
do 31...	7.00 p.m.	.....	do .....	J. B. Paulet.....	A. Doig .....	16
Nov. 8...	12.55 p.m.	.....	Express .....	R. G. Duncan .....	S. Trider .....	58
do 11...	7.45 p.m.	.....	Special ... ..	Jos. Guay .....	G. Lacroix....	130
do 14...	5.00 p.m.	.....	Shunter.....	.....	H. Como .....	26
do 15...	10.53 p.m.	9	Express.....	J. Ahearn .....	H. Tait.....	56
do 16...	8.00 p.m.	21	Freight.....	C. J. Rhodes.....	M. Wall .....	29
do 18...	3.25 p.m.	.....	Ballast .....	A. E Brown.....	Geo. Palmer.....	49
do 18...	7.45 p.m.	.....	Special ... ..	Jos. McDonald.....	C. McCarthy.....	122
do 22...	4.20 p.m.	.....	Shunter .....	.....	S. Trider .....	58
do 23...	10.00 a.m.	.....	Ballast .....	A. E. Brown.....	N. Sinclair.....	84

## RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
$\frac{1}{4}$ mile north of St. Fabien.	M. Brilliant.....	Employé.	Fell from top of cars while they were in motion.	Fatal .....	No inquest held.
Moncton.....	Albert Murray.	do ...	While coupling cars.....	Hand injured .	
St. Charles .....	E. Dionne.....	do ...	Thrown from train while applying brakes, by chain breaking.	Fatal .....	do
$2\frac{1}{2}$ miles north of Campbellton.	A. Ross.....	do ...	While loading rails one fell on his hand.	Hand crushed.	
Bathurst .....	L. Murphy.....	do ...	While coupling cars.....	Hand slightly bruised	
Canaan.....	Jvid Lockhart.	do ...	do .....	Finger dislctd.	
do .....	Henry Frites....	do ...	do .....	Arm jammed..	
Between St. Charles & St. Henri.	L. S. Paulet....	do ...	While applying brakes ...	Hand sprained	
Spring Hill....	John Leishman	Passenger	Attempted to cross track in front of engine, and was struck.	Ankle joint badly sprained.	
St. Charles .....	Tobin Caron....	Employé.	While coupling cars caught foot in frog, and two cars passed over his body.	Fatal .....	do
St. John.....	Jos. Dawson....	do ...	While standing on a ladder repairing roof of a passenger car. was knocked down by engine.	Severely inj'd about body.	
Thomson .....	R. McPherson .	Passenger	While stepping from train in motion, slipped, and wheel of car passed over his foot.	3 toes crushed.	
New Glasgow....	D. McIntosh....	Employé..	While unloading a carriage from car, was knocked off.	Side and back hurt.	
Rothsay .....	G. Buddington.	do ...	While pulling pin between engine and a flat car.	Seriously jm'd	
Maccan .....	Sim Cormier...	do ...	While coupling cars.....	Slightly jam'd	
Moncton.....	H. Stewart.....	do ...	do .....	2 fingers smshd	
Rothsay ..	John Ryan .....	do ...	Fell from train, wheel passing over his leg.	Severely inj'd.	

## INTERCOLONIAL

## RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
<b>1882.</b>						
Nov. 24...	8.40 a.m.	22	Freight .....	C. J. Rhodes.....	M. Wall.....	10
do 25...	12.45 a.m.	.....	Special ....	D. McNutt.....	J. Brown.....	47
do 30...	12.30 p.m.	.....	do .....	J. Hughes.....	H. M. Stewart .....	126
Dec. 1...	10.00 p.m.	.....	Shunter.....	.....	P. Fogarty.....	94
Dec. 14...	10.30 a.m.	.....	Special. ....	J. A. Hughes. ....	H. M. Stewart... ..	126
do 14...	6.40 p.m.	36	Freight .....	P. Foptaine.....	J. Ryan .....	105
do 18...	3.30 p.m.	.....	Shunter .....	.....	P. Fogarty .....	94
do 18...	9.20 a.m.	.....	Special. ....	L. N. Leberte. ....	John Gilker .....	20
do 22...	10.35 p.m.	34	Express .....	A. E. Olive. ....	J. E. Brownell.....	63
do 23...	.....	.....	Special. ....	Wm. Morgan.....	Geo. Milne.....	89
do 27...	1.00 a.m.	.....	Shunter... ..	.....	J. Walsh. ....	93
<b>1883.</b>						
Jan. 2...	9.00 p.m.	21	Special. ....	Wm. Crockett .....	S. Watson.....	43
do 4...	8.00 p.m.	.....	do .....	D. McNutt .....	D. McQuarrie.....	103
do 9...	8.50 a.m.	.....	Accommodation.	Jas. McDonald.....	Wm. Sproul.....	85
do 18...	3.45 p.m.	.....	Special.....	J. A. Hughes. ....	J. DeVenne.....	92
do 20...	11.45 a.m.	.....	Shunter .....	.....	M. Tobin....	67
do 23...	5.00 a.m.	.....	do .....	.....	— Walsh .....	98
do 28...	10.00 p.m.	.....	Special.....	E. P. Benoit .....	C. E. Sawyer.....	130
Feb. 2...	3.15 p.m.	.....	do .....	J. W. Henderson.....	G. Turnbull.....	51

## RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Concluded.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Hopewell .....	Jos. Kennedy...	Employé ..	While coupling cars .....	Hand injured ..	
1 mile north of Beaver Brook.	{ J. Brown..... J. Fraser..... A. Crossman	{ do ... do ... do ...	{ Collided with No. 32 { train.	{ Fatal. .... do ..... do .....	{ Accidental. do do
Sussex.....	H. M. Stewart..	do ..	While standing on siding, fell off engine.	Slightly hurt..	
Moncton.....	J. McCann .....	do ..	While coupling engine to a car.	Thumb and 2 fingers smshd	
Dorchester.....	N. McGinty... ..	Employé ..	While coupling cars.....	Finger hurt....	
Millstream.....	E. Levesque....	do ..	Fell off train when ap- plying brakes.	Fatal.....	No inquest held.
Moncton.....	P. Elliot. ....	do ..	Fell while coupling cars.	Hand crushed.	
Restigouche, snow shed.	— McTourney..	Neither....	Standing too near track, struck by wing of plough	Not seriously hurt.	
Campbellton... ..	A. Connore.....	Employé ..	While coupling safety chain.	Hand jammed.	
Williams' siding	A. E. Kimball..	do ..	While coupling cars .....	Hand crushed very badly	
Richmond .....	M. Prendergast	do ..	Fell off cars.....	Arm broken....	
½ mile north of Rogersville.	P. A. Belliveau	do, ...	Fell from top of cars .....	Fatal... ..	Accidental.
Newcastle.. ..	S. Babin .....	do ..	While coupling cars.....	Finger crushed	
New Glasgow Bridge.	— McKinnon ..	Neither....	While walking along the track was struck by engine.	Fatal.....	do
Spring Hill. ....	F. C. White. ...	Employé ..	While coupling cars.....	Slightly jam- med.	
Richmond .....	Robt. Mason....	do ..	do .....	Hand badly bruised.	
do .....	Thos. Hind.....	do ..	do .....	Hand badly crushed.	
2miles south of { Sayabec. {	{ Laurent Lavoie Louise Lavoie..	{ Neither....	{ While attempting to cross track in a waggon, were run into by train.	{ Fatal.....	{ do
Bel River. ....	Geo. Bruce .....	Employé ..	Fell between cars while pulling the pin.	Badly hurt.....	

## INTERCOLONIAL

## RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1883.						
do 7...	1.00 p.m.	.....	do .....	C. B. Humphrey .....	{ J. Morton ..... S. Watson .....	114 43
do 8...	3 30 p.m.	.....	Shunter.....	.....	Geo. Sears.....	8
do 11...	7.50 a.m.	.....	Special. ....	E. Thomson .....	R. McMann.....	108
do 12...	1.00 p.m.	.....	do .....	M. Cummings.....	S. Watson.....	115
Feb. 13...	8.10 a.m.	18	Special.....	C. J. Rhodes .....	H. Smith .....	10
do 14...	5.40 a.m.	.....	do .....	J. A. Davidson . ....	D. McQuarrie.....	77
do 21...	4.00 p.m.	.....	do .....	J. Craigie.....	J. Scott .....	75
March 3...	10.00 a.m.	.....	Shunter .....	.....	S. Wilson .....	99
do 5...	11.30 p.m.	.....	do .....	.....	G. Currie.....	82
do 10...	2 30 p.m.	.....	do .....	.....	W. Mackie.....	97
do 13...	4.35 a.m.	34	Express .....	A. McLellan.....	C. McCarthy .....	66
do 17...	6.50 p.m.	.....	Shunter .....	.....	H. Como .....	100
do 23...	2.00 .....	.....	do .....	H. Garrett.....	W. Lovett.....	93
do 24...	10.45 p.m.	28	Accommodation	J. A. Hughes .....	D. A. Cannon .....	137
do 26...	4.45 p.m.	.....	Special.....	Jas. McDonald.....	J. N. Campbell .....	124
April 3...	2.15 p.m.	.....	Shunter .....	.....	J. Ferguson .....	39
do 3...	2.30 p.m.	.....	do .....	.....	R. James .....	100
do 17...	11.30 a.m.	.....	do .....	.....	H. Como .....	26
do 23...	9.30 p.m.	.....	Special.....	Wm. Crockett.....	R. Smith .....	2
do 15...	3.30 a.m.	.....	do .....	E. L. Watts .....	D. McQuarrie.....	50

## RAILWAY.

Canada on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Persons Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Derby siding...	C.B. Humphrey	do ...	While coupling cars was caught between them.	Badly bruised about the hips	Accidental.
Campbellton. ...	Wm. Ferguson.	do ...	While coupling cars.....	Two fingers crushed.	
Sackville. ....	Geo. Hillson....	do ...	While attempting to get on train in motion, fell between cars and was run over.	Fatal.....	
Berry's Mills.....	Wm. Board. ...	do ...	While coupling engine to train.	Thumb jammed.	
New Glasgow ...	John Morley....	Employé.	While coupling cars. ....	Hand jammed.	
Campbellton ...	D. Bower.....	do ...	do .....	do	
St. Arsène.....	C. Kennedy....	do ...	While uncoupling engine from train.	Thumb badly jammed.	
Moncton.....	Geo. Armstrong	do ...	While coupling engine to car.	Arm jammed.	
Halifax.....	Wm. Herich....	do ...	While getting off cars, fell.	Leg slightly hurt.	
Rivière-du-Loup	John Chatigny	do ...	While coupling cars.....	Chest hurt.	
Canaan .....	E. Price. ....	do ...	Jumped from engine .....	Arm hurt.	
St. John.....	Thos. Grady ...	Neither....	Horse ran away and crossed track in front of morning train.	Fatal.....	
Richmond .....	Geo. Clewit....	do ...	Struck by engine while working on the wharf.	Hand injured.	
Spring Hill.....	J. Fenton .....	Employé.	While coupling engine to cars.	Two fingers badly cr'shd	
Riversdale.....	A. McPherson..	do ...	While coupling cars .....	Finger taken off.	
Moncton.....	W. Wallace ...	do ...	Attempting to get on engine, slipped.	Finger crushed	
St. John.....	Alex. Ward ...	do ...	Attempting to get on car, fell.	Leg injured.	
St. John.....	John Dillon ...	do ...	While coupling cars. ....	Arm bruised.	
Newcastle .....	Wm. Murray ...	do ...	do .....	Thumb cr'shd	
Moncton.....	Geo. Anderson.	do ...	Putting pin between engine and car.	Finger broken.	

## INTERCOLONIAL

## RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1883.						
do 30...	8.35 a.m.	21	Accommodation	A. Grant.....	W. Sproul .....	85
May 16...	4.00 p.m.	.....	Shunter .....	.....	W. Boyd.....	33
do 19...	10.25 p.m.	.....	Special.....	A. B. Vance.....	J. Wall.....	7
do 22...	12.15 p.m.	.....	do .....	A. Grant .....	W. Sproul.....	85
do 23...	5.15 p.m.	.....	do .....	Wm. McClafferty.....	J. Wall .....	7
do 24...	6.40 a.m.	36	Accommodation	B. Walker .....	Geo. Morrison .....	75
do 25...	10.20 a.m.	.....	Special .....	Geo. Logan .....	B. Cooke .....	135
do 28...	7.20 a.m.	.....	do .....	W. M. Thomson. ....	E. Rushton .....	43
June 1...	7.30 p.m.	10	Express .....	John McFadgen.....	R. Carr .....	68
do 14...	2.40.....	18	Accommodation	C. J. Rhodes .....	H. Smith .. ..	39
do 24...	6.02 p.m.	2	Express .....	D. Rutherford .....	Jas. Stockall .....	57

## RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Stellarton .....	Alex. Calder...	do ...	In getting off car fell, and four cars passed over him.	Fatal.....	Accidental.
Truro .....	Chas. Hall .....	do ...	Fell between cars while pulling pin.	do .....	do
Windsor Junction.	John Thomas...	do ...	While coupling cars.....	Finger badly jammed.	
Stellarton .....	J. Campbell...	do ...	do .....	Lost his hand.	
Campbell's Sid-ing.	B. Peterson ....	do ...	do .....	Thumb cr'shd	
Rivière-du-Loup	F. Beaulieu.....	do ...	While running bell cord.	Two fingers badly hurt.	
Elmsdale .....	H. McIntosh....	do ...	Attempting to cross in front of engine.	Fatal .....	do
Weldford.....	Wm. Bovard....	do ...	While coupling cars ...	Squeezed about hips.	
St. John.....	Jas. McDade....	Neither...	Attempting to cross track in front of engine.	Fatal.....	do
Near Four Mile House.	Newton Hopper	Employé..	Fell off box car .....	Hand, arm and ankle injured badly.	
Near Brookfield..	Lowther Ruth-erford.	Neither...	Attempting to cross track with horse and waggon in front of engine.	Fatal.....	do

## PRINCE EDWARD ISLAND RAILWAY.

SUPERINTENDENT'S OFFICE,  
CHARLOTTETOWN, 2nd October, 1883.

SIR,—I have the honor to submit the following Report of the operations of the Prince Edward Island Railway for the year ending 30th June 1883, and to transmit herewith the accounts for the same period, comprising :—

No.	1. Capital Accounts.	
"	2. Revenue Accounts.	
"	3. Locomotive Power.	(Abstract No. 1.)
"	4. Car Expenses.	( " " 2.)
"	5. Maintenance of Way and Works.	( " " 3.)
"	6. Station Expenses.	( " " 4.)
"	7. General Charges.	( " " 5.)
"	8. Monthly Statement of Earnings.	
"	9. Statement of General Stores Account.	
"	10. General Balance.	
"	11. Comparative Statement of Averages.	

I also enclose the report accompanied by statements, of the Mechanical Superintendent and Storekeeper.

## CAPITAL ACCOUNT.

The total expenditure on Capital Account to 30th June, 1882, was.....	\$3,466,990 60
Add to which, the expenditure on Rolling Stock, being provided on Capital Account, for the year ending the 30th June 1883.....	56,702 02
Making a total expenditure on Capital Account to the 30th June, 1883, of.....	<u>\$ 3,523,692 62</u>

The rolling stock provided on Capital Account up to the 30th June, 1882, was :—

- 18 Engines.
- 14 First class passenger cars.
- 12 Second do do
- 2 Postal, smoking and express cars.
- 150 Box and stock cars.
- 100 Platform cars.
- 3 Conductors vans.
- 5 Snow ploughs.
- 6 Flangers.
- 1 Pay car.

And during the year ended 30th June last this stock has been increased by :—

- 2 Engines.
- 25 Box cars.
- 25 Platform cars.

Two Snow ploughs and two first class cars, of equal sitting capacity to the standard gauge cars, and three second class passenger cars were nearly ready for service at the close of the year. The whole of this additional car stock has been built in the work shops of the railway in Charlottetown, and I state that I believe no stronger or more serviceable cars, of their several classes, have been turned out of any shops in Canada, and the snow ploughs are strongly and well put together.

The engines were manufactured in Kingston, Ontario, and the Mechanical Superintendent, who is best able to judge, assures me they are first class machinery.

## REVENUE ACCOUNT.

Mr. Luther Archibald, the late Superintendent, in his report of last year, stated that the earnings were the largest in the history of the road. I am, however, happy to be able to report that the earnings are still larger for this year, 1882-83, which is certainly very encouraging.

The gross earnings for the year amounted to.....	\$146,170 42
Previous year.....	137,267 54
Increase.....	<u>\$ 8,902 88</u>

The earnings per mile of railway compare with the previous year as follows:—

1881-82.....	\$691 52
1882-83.....	<u>736 37</u>

An increase per mile of .. \$ 44 85

The length of road operated in each year was the same, viz.: 198½ miles.

The passenger traffic has been fairly maintained, showing a slight falling off only.

## STATEMENT.

	Passengers carried.	Earnings.
1881-82.....	118,436	\$63,949 26
1882-83.....	<u>117,162</u>	<u>63,319 55</u>
Decrease.....	<u>1,274</u>	<u>\$ 629 71</u>

There is an increase both on the tonnage of freight carried, and in the earnings from this traffic.

	Tons of freight carried.	Earnings.
1881-82.....	48,315	\$64,776 28
1882-83.....	<u>51,920</u>	<u>71,038 55</u>
Increase .....	<u>3,605</u>	<u>\$ 6,262 27</u>

This increase in the tonnage of freight carried, rather indicates that the trade of Prince Edward Island is in a prosperous condition, and that the crops have been satisfactory.

The engine mileage compared with last year was—

1881-82 . . . . .	317,194
1882-83 . . . . .	<u>313,760</u>
Decrease . . . . .	<u>3,434</u>

The train mileage compared with last year was—

1881-82 . . . . .	253,185
1882-83 . . . . .	<u>248,819</u>
Decrease . . . . .	<u>4,366</u>

The car mileage compared with last year was—

1881-82	1,117,989
1882-83	1,237,103
Increase	119,114

The decrease in the engine and train mileage, and increase in the car mileage, goes to show that the engine power is more effective than in years previous, indicating as it does that they have hauled larger trains.

#### EXPENDITURE.

The operating expenses for the year amounted to \$252,808.41, which embraces a sum of \$9,941.45 paid in connection with the accident which occurred in the month of August, 1880, which latter amount forms no part of the actual cost of making the traffic of this year; it also embraces the cost of the erection of a new station at Miscouche, the providing of a number of additional sidings and the extension of several sidings and the purchase of land for snow fences, all of which are additions and improvements such as are not ordinarily charged to working expenses, but which, in this case, have entered into that account.

#### MAINTENANCE OF WAY AND WORKS.

The roadbed, permanent way, buildings and structures have received careful attention, and are in good condition; 113,423 sleepers have been put in the track during the year, and new sidings have been laid at—

	Feet.
Northam.....	475
Starch Factory, Mount Stewart.....	75
Morell.....	250
	—800

And the following sidings were extended :—

Portage.....	254
Miscouche.....	169
Charlottetown.....	300
	—723
Total.....	1,523

Making 148 sidings of an aggregate length of 14½ miles.

Twelve hundred and sixty-one car loads of ballast was distributed where most needed.

#### BRIDGES, CATTLE GUARDS, ETC.

The bridges received the necessary repairs and a standard floor system was put on the bridge at Milton.

Seven additional new sets of cattle guards were built, and twenty-eight sets were rebuilt, and the remainder received the necessary ordinary repairs.

A new road was graded through the Souris Station yard for a distance of 1,650 feet.

#### BUILDINGS.

A combined passenger and freight station was built at Miscouche.

The flag station at New Zealand was moved and rebuilt.

The flag station at Mill River was moved, rebuilt, and a platform laid.

The flag station at Richmond was moved and a new platform built.

New platforms were built at Barbara Weit, Loyalist, Milton and Royalty Junction.

Hunter River Station was re-shingled.

Summerside, Georgetown and Tignish engine houses were partially re-shingled. O'Leary and Summerside coal sheds received very extensive repairs.

A substantial crib foundation was built under the coal shed at Charlottetown.

The station platform at Charlottetown was lengthened.

All the rest of the buildings were overhauled and the necessary light repairs done thereon.

#### FENCING.

Fifteen thousand two hundred and eighty-six feet of additional new snow-fencing was built.

A large quantity of fencing was rebuilt, of which 36,575 feet were of barbed wire, 1,137 feet of poles, and 2,640 feet of boards, in addition to which the necessary repairs have been made on the fencing generally.

#### WATER SUPPLY.

The Haggas water system continues to work most satisfactorily, and is well suited to an isolated road such as this; the cost of repairs to the water service are much less than upon the old elevated system.

The water supply in the round house at Charlottetown having been found, from its brackish nature, to be very unsuitable for the locomotives, a large well has been put down a short distance north of the round house, and a powerful pump set on it. The water is of excellent quality and in abundance, and by this powerful engine it is driven into the tank, and by attaching hose to the pump the force is sufficient to wash all the engines, and also to throw a stream over the adjacent building in case of fire.

At County Line a Haggas water service has been set up during the year which will be of great service through the winter season.

#### ROLLING STOCK.

Two new engines have been purchased of the Canadian Engine and Machine Company of Kingston and charged to working expenses. They replace a similar number condemned and knocked off the list. The Mechanical Superintendent reports them as good, strong well built machines, and they will no doubt be a great acquisition to the road. The engine and car stock has received the necessary repairs to maintain it in an efficient state, and with the exception of one engine which is condemned, and to replace which arrangements are being made to purchase a new one at the cost of working expenses, and twenty-six cars which are about to be re-built, the rolling stock is in good serviceable condition.

The nett results of the working of the road are not so satisfactory as could be desired, but I trust in future years to be able to make a better exhibit.

#### STORES.

The purchase of stores during the year amounted to \$109,780.09, which includes \$19,842.11 for new steel rails and fastenings.

The value of stores on hand at 30th June, 1883, was:—

General Stores.....	\$43,258 83
Coal.....	4,083 09
Rails and Fastenings.....	24,762 97
	<hr/>
	\$72,104 89

The stores have for the most part been purchased by tender and contracts as has been the practice in past years.

On the 1st July, 1882, Mr. W. T. Huggan, from the Accountant's office of the Intercolonial Railway was appointed to the position of Accountant made vacant by Mr. Thomas Williams' promotion to the Treasurership of the Intercolonial Railway.

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I assumed the duties of Superintendent of the Road early in May last, upon Mr. Archibald's retirement from the service to take a position on the Canadian Pacific Railway.

I submit herewith a comparative statement for 1881-82 and 1882-83 of the quantities of the various classes of freight carried, and of the earnings from this source.

A casualty sheet is also attached.

I have the honor to be, Sir,  
Your obedient servant,

JAMES COLEMAN,  
*Superintendent.*

COLLINGWOOD SCHREIBER, Esq.,  
Chief Engineer and General Manager Government Railways,  
Ottawa.

No. 1.—PRINCE EDWARD ISLAND RAILWAY.

DR.		CAPITAL ACCOUNT.		CR.	
1882.			1882.		\$ cts.
June 30....	To cost of Road and Equipment to date .....	3,466,990 60	June 30....	By Dominion of Canada. ....	3,466,990 60
1883.			1883.		
June 30....	To Expenditure, year ended 30th June, 1883, on Rolling Stock.....	56,702 02	June 30....	By Dominion of Canada .....	56,702 02
		3,523,692 62			3,523,692 62

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 2.—PRINCE EDWARD ISLAND RAILWAY.

REVENUE ACCOUNT for Year ended 30th June, 1883

Previous Year.	Expenditure.	Year ended 30th June, 1883.	Previous Year.	Earnings.	Year ended 30th June, 1883.
\$ cts.			\$ cts.		
66,996 33	Locomotive Power	86,509 95	63,949 26	Passenger Traffic.....	63,319 55
30,844 32	Car Expenses	31,584 97	64,776 28	Freight Traffic.....	71,038 55
92,735 10	Maintenance Way and Works do	87,862 92	8,542 00	Mails and Sundries.....	11,812 32
23,560 16	Station Expenses do	23,899 79		Total Receipts.....	146,170 42
14,124 06	General Charges do	22,950 78	137,267 54	Balance .....	106,637 99
			90,992 43		
228,259 97		252,808 41	228,259 97		252,808 41

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No 3.—PRINCE EDWARD ISLAND RAILWAY.

## LOCOMOTIVE POWER. (Abstract No. 1.)

Previous Year.	Details.	Year ended 30th June, 1883.
\$ cts.		\$ cts.
1,711 36	Mechanical Superintendent's salary, Clerks, Office and Travelling expenses	1,364 09
13,523 91	Wages of Drivers, Firemen and Cleaners.....	14,789 57
17,918 77	Fuel.....	17,650 59
1,717 56	Oil, tallow, waste and small stores.....	1,713 23
26,562 01	Repairs to engines, tenders and engine tools.....	47,248 17
3,959 19	Water, including pump and tank repairs. ....	1,332 57
1,604 53	Miscellaneous .....	2,411 74
66,996 33	Totals.....	86,509 95

W T. HUGGAN,

*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 4.—PRINCE EDWARD ISLAND RAILWAY.

## CAR EXPENSES. (Abstract No. 2.)

Previous Year.	Details.	Year ended 30th June, 1883.
\$ cts.		\$ cts.
10,984 41	Repairs to passenger cars.....	12,047 33
506 05	do postal and baggage cars.....	755 53
5,382 25	do freight cars and vans.....	4,629 96
10,221 25	Wages of Conductors, Train Baggage-men and Brakesmen.....	11,227 56
850 74	Oil and waste for packing.....	794 13
2,578 48	Small stores and fuel.....	1,984 87
321 14	Miscellaneous.....	145 59
30,844 32	Totals.....	31,584 97

W. T. HUGGAN,

*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

No. 5.—PRINCE EDWARD ISLAND RAILWAY.  
MAINTENANCE OF WAY AND WORKS.—(Abstract No.3.)

Previous Year.	Details.	Year ended 30th June, 1883.
\$ cts.		\$ cts.
350 43	Engineer's salary, Clerks, Office and Travelling expenses.....	316 64
31,940 98	Wages in repairing road way, fences and semaphores.....	39,661 14
1,249 64	Rails, chairs and spikes.....	5,480 55
20,771 00	Sleepers.....	21,644 30
7,933 14	Timber and lumber for repairs to bridge, cattle guards, fences, &c.....	7,786 17
519 19	Repairs to wharves.....	1,470 41
11,724 68	do buildings.....	7,126 86
3,623 86	do snow-ploughs, flangers and tools.....	2,953 01
14,622 18	Clearing ice and snow.....	1,423 84
92,735 10	Totals.....	87,862 92

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

No. 6.—PRINCE EDWARD ISLAND RAILWAY.  
STATION EXPENSES.—(Abstract No. 4.)

Previous Year.	Details.	Year ended 30th June, 1883.
\$ cts.		\$ cts.
17,445 81	Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage-men, Yardmasters, Switchmen, Watchmen and Labourers.....	18,117 37
6,114 35	Fuel, oil, light, stationery, tickets and other incidental expenses.....	5,782 42
.....	Miscellaneous .....	.....
23,560 16		23,899 79

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, 30th June, 1883.

## No. 7.—PRINCE EDWARD ISLAND RAILWAY.

## GENERAL CHARGES.—(Abstract No. 5.)

Previous Year.	Details.	Year ended 30th June, 1883.
\$ cts.		\$ cts.
5,119 92	Superintendent's and Train Despatcher's salaries, Clerks, Office and travelling expenses.....	5,642 10
5,489 03	Accountant and Auditor's, Paymasters and Cashier's salaries, Clerks, Office and travelling expenses.....	5,529 14
289 60	Advertising .....	395 58
1,888 81	Damages to men, animals and goods.....	10,394 94
444 94	Telegraph men (not including pay to Operators).....	615 57
891 76	Miscellaneous .....	373 45
14,124 06	Totals.....	22,950 78

W. T. HUGGAN,

*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 8.—PRINCE EDWARD ISLAND RAILWAY.

## MONTHLY STATEMENT OF EARNINGS.

Months.	Passenger Traffic.	Freight Traffic.	Mails and Sundries.	Total Receipts.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1882.				
July.....	8,073 93	5,207 90	702 00	13,983 83
August.....	7,760 07	4,789 84	702 00	13,251 91
September.....	5,603 90	4,873 15	705 00	11,182 05
October.....	7,901 01	7,824 09	710 10	16,435 20
November.....	6,076 08	9,937 57	704 00	16,717 65
December.....	4,523 49	7,268 12	707 00	12,498 61
1883.				
January.....	3,130 33	3,085 41	731 00	6,946 74
February.....	2,089 32	2,582 63	715 22	5,387 17
March.....	2,704 56	4,146 39	711 00	7,561 95
April.....	5,216 10	6,807 44	4,014 00	16,037 54
May.....	5,304 43	8,756 56	702 00	14,762 99
June.....	4,936 33	5,759 45	709 00	11,404 78
Totals.....	63,319 55	71,038 55	11,812 32	146,170 42

W. T. HUGGAN,

*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 9.—PRINCE EDWARD ISLAND RAILWAY.

## STATEMENT of General Stores Account, Year ended 30th June, 1883.

1882.	DR.	\$	cts.	\$	cts.
June 30...	To balance brought forward.....			59,450	53
1883.					
June 30...	To purchases during the year, including rails.....	109,780	09		
	Charges from other Departments.....	14,666	70		
	Pay-rolls .....	3,584	08		
				128,030	87
1883.	CR.			187,481	40
June 30...	By Issues during the year.....			115,376	51
	Balance. { Ordinary Stores..... \$43,258 83				
	{ Fuel..... 4,683 09				
	{ Rails and fastenings on hand... 24,762 97			72,104	89

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 10.—PRINCE EDWARD ISLAND RAILWAY.

## GENERAL BALANCE.

GENERAL BALANCE.			CR.	
Dr.				
	\$	cts.		\$ cts.
General Stores.....	72,104	89	Dominion Account.....	76,231 87
Cash.....	1,187	17	Accident Insurance.....	3,115 42
Stations.....	495	65		
Militia Department.....	65	21		
Post Office Department.....	5,328	00		
Marine and Fisheries Department...	10	83		
Suspense Account.....	155	54		
Total .....	79,347	29	Total.....	79,347 29

W. T. HUGGAN,  
*Accountant and Auditor.*

CHARLOTTETOWN, P.E.I., 30th June, 1883.

## No. 11.—PRINCE EDWARD ISLAND RAILWAY.

## COMPARATIVE STATEMENT of Averages, for Year ended 30th June, 1883.

Details.	1883.	1882.
Mileage of railway open.....	198½	198½
Engine mileage.....	313,760	317,194
Train do .....	284,819	253,185
Car do .....	1,237,103	1,117,989
Receipts per engine mile..... Cents	46·59	43·27
do mile of railway..... \$	736·37	691·52
Percentage of passenger earnings to gross receipts.....	43·32	46·58
do freight do do .....	48·60	47·20
do other do do .....	8·08	6·22
Expenses per engine mile :—		
Driver's Firemen's and Cleaners' wages.....	4·71	4·26
Fuel.....	5·63	5·65
Oil, tallow, waste and small stores.....	·54	·54
Repairs to engines.....	15·06	8·37
Water and tank repairs.....	·42	1·25
Miscellaneous .....	·77	·51
Total.....	27·13	20·58
Mechanical Superintendent's salary, office and travelling expenses.....	·44	·54
	Cents 27·57	21·12
Locomotive power per engine mile.....	27·57	21·12
Car expenses do .....	10·07	9·72
Maintenance way and works, per engine mile.....	28·00	29·24
Station expenses do .....	7·62	7·43
General charges do .....	7·31	4·45
Total..... Cents.	80·57	71·96
Locomotive power, per train mile.....	34·78	26·46
Car expenses do .....	12·69	12·18
Maintenance way and works, per train mile.....	35·31	36·63
Station expenses do .....	9·60	9·31
General charges do .....	9·22	5·85
Total..... Cents	101·60	90·16
Working expenses per mile of railway..... \$	1,273 60	1,144 89

CHARLOTTETOWN, P.E.I., 30th June, 1883.

W. T. HUGGAN,

*Accountant and Auditor.*

## PRINCE EDWARD ISLAND RAILWAY.

DESCRIPTIVE STATEMENT of Freight Earnings for Year ended  
30th June, 1883.

Description of Freight.	Quantities.		Tons.		Amounts.	
	1882.	1883.	1882.	1883.	1882.	1883.
					\$ cts	\$ cts.
Oats..... Bush.	473,859	350,684	8,056	5,961	10,091 54	7,078 36
Wheat and other Grain..... "	4,177	10,699	123	321	205 97	545 61
Potatoes and Roots..... "	156,664	170,587	4,709	5,115	4,382 72	6,657 66
Flour..... Bbls.	24,819	34,540	2,434	3,456	3,954 46	5,656 85
Mackerel..... "	9,943	7,192	1,614	1,079	1,770 33	1,059 59
Herring..... "	1,437	3,844	215	576	323 21	942 02
Cod and other Fish..... "			165	122	306 89	329 94
Canned Fish..... Cases.	21,480	23,934	788	838	1,596 86	1,499 65
Oysters..... Bbls.	1,375	2,441	138	244	178 06	301 49
Fish Barrels..... No.	8,557	5,813	499	334	459 19	314 80
Timber, hewn and unhewn.... C. ft.	115,159	162,039	2,919	4,277	1,905 90	3,201 13
Lumber, sawn..... S. ft.	3,319,675	2,655,248	4,270	3,495	3,111 95	2,981 86
Shingles..... M.	6,631	9,041	994	1,355	1,020 86	1,335 27
Cordwood and Tanbark..... Cords	2,166	3,159	3,997	5,969	2,252 15	3,338 06
Shingle Timber, &c..... Cars.	55	54	534	538	481 95	442 88
Coal..... "	133	147	1,205	1,355	689 09	764 58
Lime..... Bbls.	1,734	2,027	190	216	246 24	276 95
Limestone..... Cars.	165	113	1,441	1,074	435 84	343 54
Brick and Building Stone..... "	31	34	274	315	157 65	178 90
Mussel Mud..... "	124	156	1,172	1,564	393 62	521 96
Salt.....			804	1,038	837 60	1,261 50
Live Stock..... No.	4,716	4,245	789	1,012	1,718 33	2,055 60
Pressed Hay.....			537	24	548 02	32 09
Fresh Beef.....			70	136	167 69	328 76
Pork, in carcass.....			288	390	820 45	1,127 46
do in barrels..... Bbls.	1,070	2,062	159	309	237 33	397 33
Butter.....			39	20	127 16	76 49
Eggs..... Pkgs.	19,609	24,140	710	861	1,772 58	2,095 88
Mercandise.....			9,182	9,926	23,669 54	24,448 73
Wharfage, Storage, &c.....					913 10	1,443 61
Total.....			48,315	51,920	64,776 28	71,038 55

## STATEMENT OF PASSENGER TRAFFIC.

	1882.	1883.
Total Number carried.....	118,436	117,162
do Receipts.....	\$63,949 26	\$63,319 55
Receipt for each Passenger.....	53.99	54.04

## PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL SUPERINTENDENT'S OFFICE,  
CHARLOTTETOWN, 29th September, 1883.

SIR,—I beg to submit the following statement showing the operations of the Mechanical Department of this Railway for the fiscal year ending 30th June, 1883.

A.—Monthly statement of cost of locomotive power.

B.—Statement of the performance and consumption of locomotives.

C.—Monthly statement of car mileage.

D.—Statement showing the number of locomotives, cars and snow ploughs.

E.—Comparative statement of the expenses of the Mechanical Department for the years 1881-82 and 1882-83.

During the year closed on the 30th June last, the rolling stock has been increased on Capital Account by two locomotives, twenty-five box cars, twenty-five platform cars of ten tons capacity, and two snow ploughs. The stock is further being increased on Capital Account by two first class passenger cars capable of seating sixty persons each, and three second class passenger cars, which were nearly completed at the close of the year, and have since been finished.

There were also purchased during the year to maintain the stock, two new locomotives at a cost of \$24,198.22, which sum is embraced in the working expenses; these two new locomotives are to replace two old locomotives condemned and struck off the list.

I am pleased to be able to state that the rolling stock has been well maintained, and (with the exception of the locomotives and cars which are set aside for renewal during the current year, 1883-84), is in good condition.

The four new locomotives referred to, were manufactured by the Canadian Engine and Machinery Company, of Kingston, and are, I consider, well built, serviceable machines.

The passenger and freight cars manufactured under my superintendence and direction in the railway work shops at Charlottetown, are I am satisfied equal to any similar class of rolling stock built in Canada.

The stock of locomotives, cars and snow-ploughs, provided on Capital Account, consists of:

- 20 Locomotives.
- 14 First-class passenger cars.
- 12 Second-class " "
- 2 Postal, baggage and express cars.
- 175 Box and stock cars.
- 125 Platform cars.
- 3 Conductors vans.
- 1 Pay car.
- 7 Snow-ploughs.
- 6 Flangers.

And as the locomotives which have been added to the original stock on the road when first built, and those provided from time to time to maintain their stock, are much more powerful than the original stock provided, I have no hesitation in saying that the locomotive power is much more efficient and effective than ever before.

The new cars built, and those re-built to maintain the stock, are much heavier, stronger and of greater capacity than the original stock, and in consequence I am satisfied will be less costly to maintain, and at the same time they will be found much more serviceable.

The water supply in the engine house at Charlottetown has been a source of great trouble, owing to its brackishness, and it was deemed expedient to endeavour

to procure more suitable water for the service. Accordingly a large well was sunk a short distance north of the engine house, which supplies abundance of beautiful clear water, which is forced into the engine house by a powerful pump, erected for the purpose, by attaching a coil of hose to which, water can be thrown upon any part of the building, so that it can not only be used for supplying the engines, washing them out, &c., but also as fire protection. The cost of this work has been charged to the working expenses.

I have the honor to be, Sir,  
Your obedient servant,

JOSEPH UNSWORTH,  
*Mechanical Superintendent and General Store-Keeper.*

JAMES COLEMAN, Esq.,  
Superintendent Prince Edward Island Railway,  
Charlottetown.

## PRINCE EDWARD ISLAND RAILWAY.

## MECHANICAL DEPARTMENT.

## A—STATEMENT of the cost of Locomotive Power for the Year ended 30th June, 1883.

Months.	Miles run by Engines, less ballasting.	Cost of						Average Cost per Mile run.							
		Enginem <sup>n</sup> 's Wages.	Fuel.	Oil, Tallow, &c.	Repairs.	Water, Tank and Pump Repairs.	Miscellaneous, including Office Expenses and Engine-houses.	Total.	Enginem <sup>n</sup> .	Fuel.	Oil, Tallow, &c.	Repairs.	Water.	Miscellaneous.	Total.
1882—July.....	29,887	\$ 1,231 41	\$ 1,401 44	\$ 165 55	\$ 2,158 12	\$ 119 74	\$ 232 77	\$ 5,309 03	Cts. 4 12	Cts. 4 69	Cts. 0 56	Cts. 7 22	Cts. 0 40	Cts. 0 77	Cts. 17 76
August.....	31,773	1,308 63	1,639 54	150 09	2,560 76	46 15	171 23	5,876 40	4 11	5 16	0 47	8 06	0 15	0 51	18 49
September.....	30,261	1,243 16	1,267 20	169 84	2,266 82	91 24	187 38	5,185 64	4 11	4 19	0 56	7 36	0 30	0 61	17 13
October.....	31,827	1,291 80	1,895 88	202 24	1,573 06	262 65	441 68	5,667 31	4 06	5 96	0 63	4 94	0 82	1 39	17 80
November.....	32,798	1,416 56	2,035 30	250 36	13,570 33	148 96	512 75	17,934 26	4 32	6 20	0 76	41 38	0 46	1 56	54 68
December.....	22,763	1,195 74	1,502 22	212 47	2,735 31	9 73	634 00	6,372 47	5 25	6 60	0 93	12 01	0 41	2 79	27 99
1883—January.....	21,121	1,390 79	1,392 02	194 47	14,103 30	96 32	332 18	17,519 08	6 58	6 59	0 92	66 77	0 46	1 62	82 94
February.....	18,179	1,153 07	1,284 23	75 74	1,718 14	12 06	405 02	4,648 26	6 34	7 06	0 41	9 45	0 07	2 23	25 56
March.....	21,372	1,149 04	1,434 70	66 78	2,069 97	41 87	270 69	5,033 05	5 38	6 71	0 31	6 96	0 19	1 26	23 51
April.....	19,283	1,049 61	1,009 96	32 46	1,445 27	48 44	171 45	3,757 19	5 44	5 24	0 17	7 49	0 25	0 89	19 48
May.....	25,030	1,129 77	1,373 68	29 37	1,381 42	51 54	257 15	4,222 93	4 52	5 49	0 11	5 52	0 20	1 03	16 87
June.....	29,466	1,229 99	1,414 42	163 85	1,705 67	320 87	149 53	4,364 33	4 17	4 80	0 55	5 77	1 08	0 50	16 82
Totals.....	313,760	14,789 57	17,650 59	1,713 22	47,248 17	1,332 57	3,775 83	86,509 95	4 71	5 63	0 54	15 06	0 43	1 20	27 57

(Signed)

J. UNSWORTH,  
Mechanical Superintendent and Storekeeper.

## PRINCE EDWARD

## MECHANICAL

## B.—STATEMENT of the Performance and Consumption

Months.	Hours in Steam.	Train Mileage.				Miles run by Engines.			
		Passenger.	Freight and Mixed.	Ballasting.	Piloting.	With Train.	Light.	Shunting.	Total.
1882—July.....	3,585	10,941	13,202	1,328	.....	25,471	174	5,785	31,430
August.....	4,017	11,967	13,716	3,095	.....	28,778	30	6,326	35,134
September.....	3,828	11,108	13,148	2,590	55	26,901	5	6,293	33,199
October.....	4,065	11,076	14,019	1,911	44	27,050	489	6,669	34,208
November.....	4,375	10,429	14,467	1,127	1,056	27,079	208	6,789	34,076
December.....	3,015	2,166	14,289	.....	795	17,250	128	5,385	22,763
1883—January.....	2,724	938	13,913	.....	1,840	16,691	9	4,421	21,121
February.....	2,395	64	12,413	.....	1,772	14,249	124	3,806	18,179
March.....	2,912	.....	14,203	.....	2,723	16,926	240	4,206	21,372
April.....	2,569	2,217	12,602	.....	246	15,065	68	4,150	19,283
May.....	3,295	5,233	13,993	338	98	19,662	46	5,715	25,423
June.....	3,302	11,086	13,000	.....	.....	24,086	92	5,288	29,466
Totals.....	40,082	77,225	162,965	10,389	8,629	259,208	1,613	64,833	325,654

## ISLAND RAILWAY.

## DEPARTMENT.

of Locomotives, for the Year ended 30th June, 1883.

Total Mileage.		*Average of Cars per mile run with Train.	Average Mileage.		Consumption.				Consumption for 100 Miles run by Engines.			
Cars.	Snow Ploughs.		Miles to one hour in steam	Of Cars to one of Engine.	Bushels of Coal	Pints of Oil.	Pounds of Tallow.	Pounds of Waste.	Bushels of Coal.	Pints of Oil.	Pounds of Tallow.	Pounds of Waste.
128,446 .....		5.04	8.76	4.08	13,157	1,188	1,033	401	41.86	3.78	3.29	1.27
152,614 .....		5.30	8.74	4.34	15,827	1,096	970	430	46.04	3.11	2.76	1.22
137,252 .....		5.11	8.67	4.13	12,737	1,098	880	402	38.86	3.30	2.65	1.21
149,546 .....		6.27	8.42	5.37	15,158	1,248	994	437	44.31	3.65	2.90	1.27
139,520	297	5.36	7.79	4.09	15,751	1,420	1,047	495	46.22	4.16	3.07	1.45
97,996	1,460	5.96	7.55	4.30	12,150	1,337	800	377	53.37	5.87	3.51	1.65
68,009	5,913	4.58	7.75	3.22	10,818	1,070	655	395	51.21	5.06	3.10	1.87
53,700	10,762	4.70	7.59	3.22	9,632	810	568	311	52.98	4.62	3.12	1.71
73,897	9,094	5.20	7.34	3.45	11,138	918	706	367	52.11	4.30	3.30	1.71
86,621	185	5.84	7.50	4.49	8,677	696	594	317	44.99	3.60	3.08	1.64
113,872 .....		5.82	7.72	4.48	10,604	870	750	390	41.71	3.42	2.95	1.53
123,234 .....		5.11	8.62	4.18	11,065	936	794	406	37.55	3.17	2.69	1.37
1,329,707	27,711	5.30	8.12	4.08	146,714	12,717	9,791	4,728	45.05	3.90	3.00	1.45

\*Deduct piloting from train mileage in making these averages.

J. UNSWORTH,  
*Mechanical Superintendent and Storekeeper.*

## PRINCE EDWARD ISLAND RAILWAY.

## MECHANICAL DEPARTMENT.

## C.—MONTHLY STATEMENT of Car Mileage for the Year ended 30th June, 1883.

Months.	1st Class.	2nd Class.	Postal, Baggage and Express.	Box, Stock and Hay.	Platform.	Total.
	\$	\$	\$	\$	\$	\$
1882—July.....	26,742	30,871	5,455	34,026	31,352	128,446
August.....	28,891	34,984	5,580	33,300	46,859	152,614
September.....	24,620	28,643	7,065	37,317	39,607	137,252
October.....	28,652	30,883	6,606	51,484	31,921	149,546
November.....	23,931	30,483	5,853	58,722	20,531	139,520
December.....	15,643	19,071	4,520	44,624	14,138	97,996
1883—January.....	14,796	14,056	5,001	22,126	12,030	68,009
February.....	12,418	14,043	967	17,900	13,372	58,700
March.....	13,906	15,161	2,211	21,214	20,805	73,897
April.....	14,868	13,807	8,476	37,008	12,462	86,621
May.....	19,798	20,341	8,095	48,872	16,766	113,872
June.....	24,659	25,643	7,649	42,814	22,469	123,234
Totals.....	248,924	277,986	67,478	453,007	282,312	1,329,707
Less Ballasting.....	.....	12,033	.....	879	79,692	92,604
Balance.....	248,924	265,953	67,478	452,128	202,620	1,237,103

J. UNSWORTH,

*Mechanical Superintendent and Storekeeper.*

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

D.—STATEMENT showing the number of Locomotives and the various classes of Cars on hand, 30th June, 1882 and 1883.

Particulars.	Locomotives.	Classification.									
		1st Class.	2nd Class.	Postal Baggage & Express.	Box and Stock.	Platform.	Van.	Pay Car.	Total.	Snow Ploughs.	Flangers.
On hand 30th June, 1882, serviceable.....	15	14	12	2	142	89	3	1	263	5	6
do do condemned.....	3				8	11			19		
Total Stock 30th June, 1882.....	18	14	12	2	150	100	3	1	282	5	6
Purchased and charged to Capital.....	2										
do do Working Expenses....	*2										
Built at Charlottetown Railway Works and charged to Capital.....					25	25			50	2	2
Total Stock.....	20	14	12	2	175	125	3	1	332	7	6
Condemned on hand 30th June, 1882 .....	1				8	11			19		
do during the year.....					5	2			7		
	1				13	13			26		
Add serviceable and repairing.....	19	14	12	2	162	112	3	1	306		
Total Stock 30th June, 1883.....	20	14	12	2	175	125	3	1	332	7	6

\* The two Locomotives purchased and charged to working expenses, replace two of those condemned.

J. UNSWORTH,  
Mechanical Superintendent.

## PRINCE EDWARD ISLAND RAILWAY.

## MECHANICAL DEPARTMENT.

## E.—COMPARATIVE STATEMENT of the Expenses of the Mechanical Department, for the Years ended 30th June, 1882 and 1883.

	1882.	1883.
The miles run by trains were.....	253,185	248,819
do engines were.....	317,194	313,760
do cars were.....	1,117,989	1,237,103
do snow ploughs were.....	30,827	27,711
	\$ cts.	\$ cts.
The cost of locomotive power was.....	66,996 33	86,509 95
do repairs to cars was.....	16,872 71	17,432 82
do labor, oil and waste for packing.....	850 74	794 13
do repairs to passenger cars was.....	10,984 41	12,047 43
do do postal, express and baggage cars was.....	506 05	755 53
do do freight cars and vans was.....	5,382 25	4,629 96
The cost of locomotive power per 100 miles run by trains was.....	26 46	34 76
do do do engines was.....	21 12	27 57
do do do cars was.....	5 99	6 99
The cost of repairs to cars per 100 miles run by trains was.....	6 66	7 00
do do do engines was.....	5 31	5 55
do do do cars was.....	1 50	1 40
The cost of labor, oil and waste for packing per 100 miles run by trains was...	0 33	0 31
do do do engines was.....	0 26	0 25
do do do cars was.....	0 08	0 06
Repairs to passenger cars per 100 miles run by trains.....	4 33	4 84
do postal, express and baggage cars.....	0 20	0 30
do freight cars and vans.....	2 12	1 86

J. UNSWORTH,

*Mechanical Superintendent and Storekeeper.*

## PRINCE EDWARD ISLAND RAILWAY.

RETURN of Accidents and Casualties which have occurred on the Prince Edward Island Railway, during the Year ended 30th June, 1883.

Date.	Time of Night or Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.	Name of Persons Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
1882.												
July 17	7.10 a m	1	Express...	D. H. Margown	M. D. Armour	...	Winsloe Station	John Robertson and wife, Mr. and Mrs. Ruel, Mme St. Elizia.	Passeng'r's	Axle of forward coach broke close up to the wheel, throwing two coaches off track.	Contusions and slight cuts.	
Nov. 24.	6.30 a m	5	Mixed .....	Jno. Thompson	W. Watson	....	N'r County Line	Ed. Mulligan .....	Neither....	Lying on track under influence of liquor. Run over.	Shoulder and 3 ribs broken, scalp wound, & injured internally.	

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WINDSOR BRANCH RAILWAY.

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RAILWAY OFFICE,

MONCTON, N. B., 12th October, 1883.

SIR,—I have the honor to transmit the following statements showing the results of the working of the Windsor Branch Railway for the year which ended 30th June, 1883

No. 1.—Revenue Account.

No. 2.—Maintenance of Way and Works.

No. 3.—General Balance.

No. 4.—Statement of Monthly Earnings.

I also send you the report of Chief Engineer on the condition of the permanent way and works.

This line, thirty two miles in length, was operated during the year by the Windsor and Annapolis Railway Company on the same terms as last year, the Company being allowed to retain two-thirds of the gross earnings, the balance one-third being paid over to the Government, the latter maintaining the line.

The gross earnings for the year amounted to.....	\$24,113 89
--	-------------

The expenditure for maintenance of way and works was.	23,103 93
---	-----------

The nett earnings were... ..	\$1,009 96
------------------------------	------------

The permanent way and all the works belonging to this railway have been maintained in good working order.

A quantity of new steel rails were laid, and a large number of new sleepers were put in the track.

A number of sidings were extended and improved.

The necessary repairs were made to buildings, bridges and wharves.

The fences along the line received extensive repairs.

The gross earnings of gain show an increase over the previous year.

I have the honor to be, Sir,

Your obedient servant,

D. POTTINGER,

*Chief Superintendent.*

COLLINGWOOD SCHREIBER, Esq.

Chief Engineer and General Manager Government Railways,  
Ottawa.

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## No. 1.—WINDSOR BRANCH RAILWAY.

## REVENUE ACCOUNT, year ending 30th June, 1883.

Previous Year.	Expenditure.	Year ending 30th June, 1883.	Previous Year.	Receipts—Earnings.	Amount, Year ending 30th June, 1883.
\$ cts.		\$ cts.	\$ cts.		\$ cts
10,934 89	Maintenance of Way and Works..... (Abstract No. 1.)	23,103 93	7,865 31	Passenger Traffic .....	8,019 81
			12,228 01	Freight Traffic .....	15,134 41
			959 87	Mails .....	959 67
10,118 30	Balance .....	1,009 96			
21,053 19		24,113 89	21,053 19		24,113 89

R. B. BOGGS,  
Acct. W. B. Ry.

MONCTON, N.B., 30th June, 1883.

## No. 2.—WINDSOR BRANCH RAILWAY.

(ABSTRACT No. 1.)—MAINTENANCE of Ways and Works.

Previous Year.	Particulars.	Year ending 30th June, 1883.
\$ cts.		\$ cts.
5,592 99	Repairs of track.....	5,879 63
397 00	Rails and fastenings.....	3,095 63
2,834 03	Sleepers.....	4,217 31
12 90	Switch locks.....	23 50
678 12	Bridges.....	2,393 91
15 42	Signals.....	18 52
357 71	Culverts and cattle guards.....	122 57
242 55	Buildings and platforms.....	2,361 70
439 05	Fences.....	1,332 96
8 05	Hand cars and trollies.....	94 83
919 50	Removing snow and ice..	414 12
235 49	Tools and repairs.....	365 74
0 00	Wharf at Windsor .....	9 40
1,104 63	Accountant's office and expenses.....	1,268 44
232 11	Miscellaneous .....	1,505 65
13,009 55		
2,164 66	Less—Old Material Account deducted.....	
10,934 89		23,103 93

R. B. BOGGS,

*Acct. W. B. Railway.*

MONCTON, N.B., 30th June, 1883.

## No. 3.—WINDSOR BRANCH RAILWAY.

DR.	GENERAL BALANCE.	CR.
1883. June 30.	Windsor and Annapolis Railway..... Stores .....	\$ cts. 2,332 76 2,368 26 4,701 02
		1883. June 30.
		Intercolonial Railway..... Dominion Account.....
		\$ cts. 4,602 98 98 04 4,701 02

R. B. BOGGS,

*Acct. W. B. Railway.*

MONCTON, N.B., 30th June, 1883.

## No. 4.—WINDSOR BRANCH RAILWAY.

## MONTHLY STATEMENT of Receipts—One-third Earnings.

Month.	Passengers.	Freights.	Mails.	Total.
1882.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
July.....	952 76	1,122 36	80 75	2,155 87
August.....	1,014 95	1,122 04	80 76	2,217 75
September .....	923 83	1,474 96	80 76	2,479 55
October.....	763 42	1,724 70	79 74	2,567 86
November.....	588 21	1,902 92	79 73	2,570 86
December .....	656 07	1,308 54	79 73	2,044 34
1883.				
January.....	440 69	870 19	79 73	1,390 61
February .....	368 28	768 20	79 73	1,216 21
March.....	484 01	1,211 04	79 74	1,774 79
April.....	533 75	1,347 75	79 66	1,961 16
May.....	557 18	1,218 42	79 67	1,855 27
June.....	736 66	1,063 29	79 67	1,879 62
Totals ....	8,019 81	15,134 41	959 67	24,113 89

R. B. BOGGS,  
Accountant, W. B. Railway.

Moncton, N.B., 30th June, 1883.

## CHIEF ENGINEER'S OFFICE,

MONCTON, N.B., 1st September. 1883.

SIR,—I have the honor to submit the following Report on the maintenance of the Windsor Branch, for the year ending 30th June, 1883.

The mileage operated is the same as reported last year.

*Track.*

About one and a half miles (8,064 feet) of old iron was taken up and replaced with  $4\frac{1}{4}$  inch steel rails, weighing 57 lbs. to the lineal yard.

The siding to the Windsor cotton factory was extended.

Some alterations and extensions were made to the sidings at Windsor Junction

*Sleepers.*

During the year 14,006 sleepers were renewed as against 8,100 last year.

*Fencing.*

One mile of the old pole fence was renewed with the standard barbed wire fence in use on the main line.

Extensive and necessary repairs were made to the fencing over the whole line.

*Buildings.*

A new station and a freight house were erected at Windsor Junction for the joint use of the main line and branch.

The roofs of Mount Uniacke station and freight shed resingled; the platform at this station was renewed.

Tool houses for the section men were erected at Stillwater and Ellershouse.

Necessary repairs were made to the planking and timbers of Windsor wharf.

*Bridges.*

The old floor of Jordan's River bridge was replaced with the improved standard floor in use on the bridges of the main line.

The masonry of piers has also been thoroughly overhauled and repointed.

A new and improved floor was also put on Big Bog bridge, and the masonry of abatments and piers repointed with cement.

Small repairs were made to the Sackville bridge.

*Culverts.*

Repairs were made to culverts at Three Mile Plains and Ellershouse.

An arch culvert near Newport was converted into a beam bridge (iron girders) of 18 feet span. There was only one foot of embankment over the crown of the arch, and it was found impossible to keep the arch stones in place.

The stone cattle guards at the crossing of the Windsor road at Three Mile Plains were rebuilt.

The track is in good running order.

I am, Sir,

Your obedient servant,

P. S. ARCHIBALD,

Chief Engineer.

D. POTTINGER, Esq.,

Chief Superintendent, Moncton, N.B.

## APPENDIX No. 5.

## No. 1.

DEPARTMENT OF RAILWAYS AND CANALS,  
SUPERINTENDING ENGINEER'S OFFICE,  
MONTREAL, 25th September, 1883.

SIR,—I have the honor to submit the Annual Report on the works under my charge, for the fiscal year 1882-1883, which ended on 30th of June last.

These works are the Lachine and Beauharnois Canals on the River St. Lawrence, the Chambly Canal and the St. Ours Lock and Dam on the Richelieu River.

Statements are annexed showing, the greatest and least depth of water on the mitre sills at the entrance locks of each canal and of the St. Ours Lock, for each month of the navigable season, and also the fines and damages collected.

## LACHINE CANAL.

This canal was closed by ice on the 1st of December, 1882, and re-opened for navigation on the 1st of May, 1883. It was unwatered for repairs for seven days, from 24th to 30th April, inclusive.

No interruption to the traffic occurred on this canal during the fiscal year. All works in connection with it were kept in good order.

From 1st July, 1882, until the close of the season, the traffic through this canal was about the average of previous years, but from the opening of navigation this spring until the end of the fiscal year, the trade was very brisk, so much so, that Lock No. 5 at Lachine was fully taxed, this being the only station on the canal where the new lock is not in use.

The new locks, Nos. 1 and 2, at the Montreal terminus, were opened to the trade on the 23th July, 1882, and new locks, Nos. 3 and 4, on 1st May, 1883.

Since the opening of navigation this spring, a large number of sea going steam and sailing vessels have entered this canal from the harbor and passed up to Basin No. 1 and Wellington Basin, freighted with coal, sugar or plaster for the different factories and for the Grand Trunk Works.

These basins brought the ships so much closer to the points where the cargoes were required that a saving of from twenty to thirty-five cents per ton was effected for the purchaser. These ships generally took in their return cargoes of pine, deals or phosphates without leaving the canal, which was also a saving to shipowners, there being no occasion to ballast their vessels before going elsewhere for return cargoes.

The wharves in connection with the canal were placed under the management of this Department on the 25th of October last, and a wharfinger was appointed and placed in charge of them. Since then ample accommodation has been furnished to all branches of trade requiring wharf room.

Traffic through this canal is now being carried on during the night time as it is by day; not even the largest and heaviest grain laden schooners or barges having to lay over for daylight. The current has been reduced to such an extent that the large sized barges which, previously to the enlargement, required from six to eight spans of horses to tow them up the canal, when drawing eight feet of water can now be towed up quite easily by two pairs of horses. The time now required for

steamers to pass through the entire length of the canal, including the time for locking, is two and one-half hours. Barges towed by steam-tug can pass in three hours, while those towed by horses take from four to five. Tugs, however, are fast, taking the place of horses for towing between the locks, but horses must still be kept at the locks to tow the boats into and out of them.

The water supply for the mills and factories fed from the canal is now probably one of the best in the country, as the water does not fluctuate in any of the reaches of the canal at any time during the year more than two inches.

The work done by the Superintendent during the fiscal year is classed under two headings, viz., "Repairs" and "Construction."

The repairs were generally of the ordinary kind, and were carefully made as required, all the structures, banks, roads, tow paths, ditches and offtake drains have been kept in thorough repair, and are now in a high state of efficiency.

Work charged to construction account was done by days labor, and consisted of restopping and raising the new lock gates to overcome the settlement of lock walls, furnishing and placing apparatus for working the valves, making and placing chain well roller frames, making and mooring glancing booms at all the bridge approaches, and furnishing working chains for the new lock gates instead of the copper wire rope which was found to be too soft for the purpose.

As previously stated, four of the new lock gates are now in use, Nos. 1, 2, 3 and 4, and give general satisfaction. No. 5, which is the entrance lock at Lachine, is also ready and can be used as soon as the channel through section No. 11 is completed, which will probably be this fall.

The time required to make a lockage through either of the new locks 1 or 2, is from 12 to 14 minutes; and through new locks, 3 and 4, from 9 to 11 minutes. The difference in time is caused by locks 1 and 2 having 5 feet more of a lift than the others, involving a greater height and weight of the gates to be moved, and a larger body of water to be passed in filling and emptying the lock. Protection wire cables have been placed on the upper gates of four of the old locks. These cables are so arranged that when the gates are closed the cables are perfectly taut, so that should a boat strike one of the gates from below, the cable will hold the other gate in place until the gate so struck returns to its proper position by the force of the water, and, on the other hand, should a boat run against the gates from above, unless the stroke be a very heavy one, the cables will prevent the gates from being displaced. When the gates are open the cable assumes a perpendicular position by the side of the back toe binder, and is quite out of the way.

This contrivance costs but little, and although very simple, will no doubt be the means of averting many accidents to the gates of the locks where they are in use.

A large portion of the basins and wharfs are still without light, and as these wharves are much used by night for discharging and loading vessels, it would be well if some method of lighting were soon adopted.

#### BRIDGE OVER THE NEW LOCK AT LACHINE.

All the materials for the superstructure of a swing bridge to be erected over the upper end of Lock No. 5, have been prepared by Mr. John McDougall, and the bridge will soon be completed.

#### NEW ST. GABRIEL BASINS, NOS. 3 AND 4.

Plans were prepared for these basins during the winter, and approved of. Tenders were received for their construction in June. The contract was awarded to Messrs. Rodgers & Farrel, who are now making preparations to commence work.

#### GATES FOR THE NEW LOCKS.

These gates were built under contract by Messrs. O'Brien, Gordon & Bergin. There are thirteen pairs in all, ten pairs of which are now in use in the different locks, and three pairs are held in reserve in case of accident.

At the close of the fiscal year 1881-82, all the gates had been hung in their places, and but little remained to be done to them except mounting top fixtures and working apparatus. This was done to all, with the exception of those at Lachine, before the close of the season. Work on those at Lachine was not fully completed till last spring. The three pairs of spare gates were completed before the winter set in.

A final estimate was forwarded to the Chief Engineer in April last, and the contractors have been settled with in full.

#### NEW WORKS OF ENLARGEMENT.

##### MONTREAL DIVISION.

This division extends from the harbor of Montreal to Côte St. Paul,  $4\frac{8}{10}$  miles in length, and includes sections No. 1 to No 7.

All the works on these sections were completed, and the contractors settled with at date of last annual report.

##### LACHINE DIVISION.

This division is four miles in length comprising Sections 8, 9, 10 and 11 and extending from Côte St. Paul to Lachine. It is under the charge of H. H. Killally, Esq., as Resident Assistant Engineer.

##### *Sections 8, 9 and 10.*

Work upon these sections was finished as mentioned in my report for year ending 30th June 1882; and during the year now completed, final settlements have been made with the contractors for Sections 8 and 10.

##### *Section No. 11.*

The work on this section consists in the construction of a new entrance channel and harbor in the river bed at Lachine, on the outside of the present one.

The work done during the fiscal year consisted chiefly in unwatering the Basin between the two cross dams and excavating the channel therein; the removing of the lower cross dam; the stripping of a portion of the double cribwork and placing transverse ties connecting the two rows of cribs; the filling between walls on the single 30 feet cribbing, and grading behind walls on other parts of the section, also the building of a small quantity of side wall in cement.

The superficial area of the basin which required unwatering in order to facilitate the excavation of a channel 200 feet in width, was a little over nineteen acres, with an average depth, at the time when pumping was begun, of 12 feet; the length of the enclosing dam was 4,622 feet.

The season's work was opened by an attempt at pumping this basin dry; but owing to leaks and washouts this was found to be impracticable. Repairs at detached points seemed to be of no avail, and it was consequently decided to pile the dams throughout the greater part of their length with eight inch sheet piles.

The months of July and August were spent by the contractors in driving these piles which had the effect of almost entirely stopping the leakage.

Rock excavation was commenced on the 17th of September, and was continued throughout the winter months with as large a force as could be worked to advantage,

After the completion of excavation in the upper basin, and before removing the lower cross dam it was deemed expedient to connect the two rows of cribs in the double crib-work below that dam by transverse ties, before again subjecting them to pressure from the outside. The placing of these ties was therefore immediately ordered and commenced. This involved very heavy work in the removal of frozen material from the top of cribs; the cutting and carting away of ice and snow; cutting ice in the basin to free the cribs; and getting the timber for ties out of rafts where it had been frozen in all winter.

After these ties had been placed and the cross dam removed, the remaining excavation where the cross dam had been, was commenced on March 16th and finished April 3rd. No difficulty was found in keeping the section dry.

During the last three months the contractors have had a small force at work, grading and placing mooring posts on the new pier; and for the last three weeks of June, two gangs of masons have been employed on the south side wall.

#### EXTENSION OF LANDING PIER—G. T. R. DEPOT, LACHINE.

This work consists of the extension of the old G. T. R. Pier up stream for a distance of 320 feet, and is built of detached cribs 30 feet square, spaced at intervals of 20 feet, and finished at its upper end by a sloping icebreaker placed upon a crib 70 by 40 feet and sheeted with oak timber 6 inches in thickness.

The contract was awarded March 16th, 1882, to Messrs. D & W. Gaherty & Co.; and work was commenced 27th June, and completed 18th December same year. A final settlement has since been made with the contractors.

In the superstructure of cribs and bridging of openings, provision was made for carrying a single line of railway track; and upon the completion of our work a line of rails was laid by the G. T. R. Company.

The Caughnawaga Ferry boat having ceased running at an early date last fall, the success of this extension as providing a winter landing is as yet undecided.

#### BEAUHARNOIS CANAL.

This canal was closed by ice on the 30th November, 1882, and re-opened on 30th April, 1883.

A serious accident occurred on the 25th of August, 1882. This was caused by the steamer "Prince Arthur," while ascending the canal, during the night running into and carrying away three of the gates of Lock No. 13. At the time of the collision the lock was full and some vessels were entering it.

The six mile reach above the lock was emptied and considerable damage was done to the banks and crops below by the overflow of water. Navigation was interrupted for forty-eight hours only.

Extensive repairs, alterations and renewals have been made during the year, the principal of which are enumerated below.

#### LOCKS AND LOCK GATES.

At Locks 10, 11, 12 and 13 portions of the stone coping which had been disturbed by passing vessels, were taken up and relaid; as also were the stone steps of the same locks and those of Locks 7, 8 and 9.

Four pairs of gates have been built, and two pairs which were much damaged, were repaired. Two pairs of new gates were for the St. Our's Lock. On completion they were taken there and put in place. Another pair is kept in reserve as spare gates for Lock No. 13; and the fourth pair was placed in position at Lock No. 7. The gates damaged by the steamer "Prince Arthur" at Lock 13 were brought down to the work shop, repaired, and replaced in that lock. The upper gates of Lock No. 11 received considerable repairs; and at this lock, as well as at Locks 12 and 13, gates were raised and adjusted.

New bumping posts to the number of ten were placed at different locks, and two were repaired.

#### WEIRS.

The rebuilding of the walls of the raceways of the weirs at Valleyfield, which had been begun in the previous fiscal year, has been continued and completed, and also the iron railing on top of the said walls.

Iron railings were also placed on each side of the bridge over the waste weir, near McDonald's mill.

#### BRIDGES.

The swing bridge across Lock No. 14, at Valleyfield, was removed from its old position and placed a little above the lock.

For this purpose new abutments, turning tables, &c., &c., had to be constructed, and new approaches made. This removal was made at the request of some of the inhabitants of Valleyfield.

The swing bridges over Locks 10, 11 and 13, were repaired and strengthened, and a new approach was built to the bridge at Lock 10.

New stationary bridges were built as follows: one over the waste weir at McDonald's mill at Valleyfield. This bridge was made 24 feet wide instead of 12 feet as before, consequently the masonry of piers and abutments had to be lengthened. Three others over the large weir and head race at Lock 14, also in Valleyfield, and one over the waste weir of Lock No. 7.

A large bridge was also built over the branch of the River St. Lawrence, between the Grande Isle and St. Timothy.

Ten farm bridges over back ditches were renewed and many others repaired.

#### BUILDINGS, FENCES, &c.

The Lockmaster's house at Lock 12 has been almost entirely rebuilt inside, including floors, ceilings, partitions, doors and windows, and well painted inside and outside.

The two houses occupied by the men of lock No. 8 received repairs similar to those above mentioned; and in addition, their chimneys were rebuilt and a new back kitchen was built for each.

The houses of the keepers of St. Timothy Bridge and of Ferry No. 2 also received considerable repairs.

The Lockmaster's houses at Locks 7, 8, 9, 10, 12, 13 and 14 were painted inside and outside; and those of the lockmen at Locks 7, 8, 9 and 10 were similarly treated inside and outside.

The new workshop has been brought fully into use during the past year, and some additional machinery has been placed in it. It is now a very complete shop of the kind.

#### WHARVES AND PIERS.

The wharf at the upper entrance of canal on south side has been removed above low water line, and at the upper corner 5 feet below that line. This wharf is 600 feet long by 12 feet wide.

The lower guide pier on the north side of St. Timothy Bridge was rebuilt and well filled with stone.

All the other wharves and piers were kept in a fair state of repair.

#### BANKS, DAMS, DYKES, &c.

The dams and dykes have received considerable repairs. The canal banks below Lock No. 13, which were much damaged by the overflow of water at the time of the accident in August last year, were raised and repaired.

Two hundred snubbing posts were made, many of which were placed on the banks, and the remainder will be placed on them during the present season.

All side ditches, and off take drains, were thoroughly cleaned.

Public roads, passing on the canal banks and dams, about 27 miles in length have been kept in good repair.

All thistles and weeds were cut, over the whole extent of the canal lands at the proper season.

During the past year the water level in the canal has been kept up to a little over nine feet on the sills of the locks. Some of the reaches are so much silted up in the bottom, that it will soon be necessary to deepen and clean them with a steam dredge.

### CHAMBLY CANAL.

The navigation was maintained with but one serious interruption of thirty hours, caused by a barge entering Lock No. 5 from above, under too great headway, running into and carrying away the lower gates, on the 21st October last.

The canal was closed by ice on the 29th November, 1882, and re-opened on 1st May, 1883.

The works executed during the fiscal year were of two kinds, viz: The "ordinary repairs," and "works of improvement" chargeable to income.

The ordinary repairs were chiefly as follows:

Lock No. 1 received a new set of stop logs. A new top bar and balance beam on one of the upper gates of Lock No. 2, and fenders repaired. At Lock No. 3, the protection piers were repaired. The gates of Lock No. 5, damaged by the barge *Cooper*, were repaired immediately after the accident and replaced. In the spring the lower gates received further repairs, a new balance beam and valve being supplied; the protection piers at lower end were also repaired. One new balance beam was placed at Lock 6, and two at Lock 7.

One pair of spare lock gates was built, and four balance beams, and other timber prepared.

The banks were gravelled on top, for a width of 8 feet in the vicinity of bridges 3, 4 and 6, and at Lock No. 2.

The side walls were repaired from St. Therese Island to Chambly; and 1,450 yards of new wall were built. One hundred new snubbing posts were placed on the banks, and a large number made and held ready for use. All culverts and ditches were cleaned in March, and two bywashes repaired, one of them being replanked.

Swing bridge No. 2 was re-built, including foundations, in the spring, and one tow path bridge. All the other swing bridges received new fenders, and such other repairs as they required.

All the buildings received the usual repairs. The canal office was provided with double windows. New watch houses were built at Locks 2, 3, 4, 5 and 6, and at bridges 2, 3, 4 and 5. A large one, 15 feet by 20 feet, was built for the men at the combined Locks 7, 8 and 9. Timber has been framed and other preparations made for the erection of three new lighthouses, and a carpenter's work-shop.

The steam dredge and scows, &c., connected with it, were prepared for the winter at Chambly. In March and April they were thoroughly repaired, the hull of the dredge being almost renewed. Two large scows, three small scows and twelve dumping boxes were built for the use of the dredge.

#### *Lock No. 1 at St. Johns.*

During the month of April, 30 feet in length of wall on the east side of this lock, which overhung and was in danger of falling, was taken down and rebuilt.

#### *Locks Nos. 7, 8 and 9 at Chambly.*

These are combined locks. They have been in a dilapidated state for some time past. During last winter and spring they received extensive repairs, the central lock, No. 8, having been almost entirely rebuilt. In December, the walls on both sides of Lock No. 8, and on the west side of No. 9, were taken down. The lower portions were then rebuilt with a timber facing, sheathed with boiler plate at all projecting angles and a backing of masonry and concrete to a height of 7 feet above the mure sill.

The walls above that level were built of cut stone masonry. The breast wall and the mitre sill between these two locks were also reconstructed.

The lower mitre sill of Lock 7, was repaired and strengthened.

Those portions of the walls which were not rebuilt were pointed with cement.

#### *Wharves.*

The superstructure of wharf No. 3 at St. Johns, 625 feet in length, was rebuilt in September and October, 1882.

Wharf No. 2, also at St. Johns, was repaired by having its upper tier of timbers renewed for a length of 764 feet.

#### STEAM DREDGE.

In July 1882, the dredge was employed in cleaning and deepening the bottom of canal between Jones' Bridge and Lock No. 1 at St. Johns. From that time until the beginning of October it worked on the worst part of the bottom below Lock No. 1, as far down as Ste. Therese Island.

In October the dredge was sent to St. Ours. Before the close of navigation in November, the dredge was sent back to the Chambly Canal, where it and the plant connected with it were placed in winter quarters.

In April, the dredge scows, &c., were thoroughly repaired and equipped.

From the opening of navigation to the close of the fiscal year, the dredge worked at cleaning the bottom in the short reaches at Chambly, below Lock No. 2.

The dredged material has been for the most part used in filling wharves, raising and widening banks, roads, &c.; a small quantity not required at St. Johns was dumped in the river. At several points along the canal where there was room for it the surplus has been placed for future use.

#### ST. OURS LOCK AND DAM.

Navigation at this lock was closed by ice on the 28th November, 1882, and reopened on 19th April, 1883. An interruption of 28 hours took place in June, while the old gates were being taken out and replaced by new gates, which were built at the Beauharnois Canal workshops.

The dam was sheeted anew with three-inch pine plank, and eighteen toises of stone were procured and piled on each bank for use when required.

The scows kept for service about the dam were hauled out and repaired, and a new ferry scow was built, as well as a row boat. The landing stage at the upper end of the lock was removed in the fall and replaced in the spring. Six mooring posts in the guide pier, which were cut away by ice in the spring, were replaced by others in boxes, so as to be removable each fall.

In March, the gates and piers were freed from ice by sawing, to prevent damage as far as possible.

The Superintendent's house and the dwellings of the lockmen with their out-buildings and fences were repaired.

The lock bottom was examined by a diver, and the leak previously reported was found to be as before, not having increased.

#### NEW WORKS.

These works were undertaken to improve the approaches to the lock. The navigators having complained that the prevailing west wind drove them into shallow water on the east side, from which it was difficult to return to the lock, it was decided to remedy this inconvenience by constructing on the east side above and below the lock, a range of piers to support booms, which would retain vessels in the channel, and to deepen the channel to 8 feet at low water.

Five piers have been built below the lock 20 feet long by 12 feet wide, and from 16 to 20 feet in height.

Above the lock there were built also five piers, of which four are 20 feet by 18 feet, and from 16 feet to 21 feet high; the fifth or upper one is 20 by 30 feet, with a height of 15 feet.

These piers are well filled with stone, and sheeted with plank above and below the water level in the fall at which the ice takes. The fifth pier at the upper end is formed as an ice breaker, having two of its faces inclined at an angle of forty-five degrees and sheeted with tamarac plank four inches thick.

The booms have a total length of 1,000 feet, of which 500 feet are above and 500 feet below the lock. They are 3 feet broad, and are connected together and moored to the piers by strong chains.

The deepening of the channel and of the seats of the piers was done by the steam dredge No. 1, in October and November, 1882.

The piers were commenced in November, 1882, and finished in March, 1883. The booms were begun in May, 1883, and were almost finished at the close of the fiscal year. They were completed shortly after and moored in their places.

These works will, I believe, fully answer the purpose intended, and have already given great satisfaction to the captains of vessels and navigators on this route.

I have the honor to be, Sir,

Your most obedient servant,

E. H. PARENT,  
*Superintendent Engineer.*

LACHINE CANAL.

STATEMENT showing the depth of river water on the mitre sills of Lock No. 1 at lower entrance, and Lock No. 5 at upper entrance, during the Fiscal Year ended 30th June, 1883. (From Lockmaster's Returns.)

Months.	Lock No. 1, Lower Sill.		Lock No. 5, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1882.	ft. in.	ft. in.	ft. in.	ft. in.
July .....	21 9	19 6	13 6	12 4
August .....	19 8	19 10	12 2	11 9
September .....	19 0	18 0	11 9	11 1
October .....	18 8	17 1	11 4	10 7
November .....	17 8	16 9	11 0	10 4
December .....	30 2	16 6	12 0	10 2
1883.				
January .....	28 6	23 1	11 3	10 3
February .....	26 3	24 3	10 7	9 4
March .....	26 9	24 8	10 5	8 11
April .....	32 10	22 3	13 7	9 6
May .....	22 8	20 10	14 4	12 3
June .....	23 1	21 8	14 4	13 8

BEAUHARNOIS CANAL.

STATEMENT showing the depth of river water on the mitre sills of Lock No. 6 at lower entrance, and Lock No. 14 upper entrance, during the Fiscal Year ended 30th June, 1883. (From Lockmaster's Returns.)

Months.	Lock No. 6, Lower Sill.		Lock No. 14, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1882.	ft. in.	ft. in.	ft. in.	ft. in.
July .....	13 3	11 8	12 10	12 5
August .....	11 8	11 4	12 9	12 4
September .....	11 4	11 3	12 5	11 10
October .....	11 2	9 8	12 0	11 8
November .....	9 8	9 6	11 11	11 3
December .....	10 10	9 4	12 0	11 0
1883.				
January .....	17 6	10 0	11 6	10 10
February .....	16 6	14 1	11 6	10 5
March .....	17 6	14 4	11 6	10 10
April .....	14 6	12 10	12 10	11 3
May .....	13 4	12 3	13 2	12 1
June .....	13 9	13 3	13 2	12 8

## CHAMBLY CANAL.

STATEMENT showing the depth of river water on the mitre sills of Lock No. 9 at lower entrance, and Lock No. 1 at upper entrance, during the Fiscal Year ended 30th June, 1883. (From Lockmaster's Returns.)

Months.	Lock No. 9, Lower Sill.		Lock No. 1, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1882.	ft. in.	ft. in.	ft. in.	ft. in.
July .....	12 6	10 4	9 7	8 5
August .....	11 5	9 4	8 7	7 9
September.....	10 0	8 7	8 8	7 3
October .....	10 1	9 4	8 6	7 6
November .....	9 7	8 8	8 2	7 0
December .....	9 5	8 3	7 4	7 0
1883.				
January.....	9 4	8 5	7 4	7 0
February .....	10 9	8 9	8 0	7 0
March.....	11 3	9 9	8 9	7 6
April .....	20 2	10 2	11 8	7 7
May.....	16 9	14 10	11 6	9 10
June .....	16 8	13 4	11 0	9 8

## ST. OUR'S LOCK.

STATEMENT showing the depth of river water on the mitre sills of St. Our's Lock during the Fiscal Year ended the 30th June, 1883. (From Superintendent's Returns.)

Months.	Lowest Sill.		Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1882.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
July.....	13 5	10 4	10 11	9 6
August.....	10 9	9 9	9 5½	8 10
September.....	10 4	9 3	9 3	8 5
October.....	10 1	8 0	9 4½	8 10
November.....	8 10	7 7	9 2	8 3
December.....	13 4½	7 6	9 1	7 9
1883.				
January.....	12 9	11 3	8 7	7 11
February.....	12 10	12 1	9 1½	8 4
March.....	12 7	11 10	9 2	9 0
April.....	22 3	11 4	18 1	9 2½
May.....	15 11	13 10	14 1	12 2
June.....	16 2	13 2	13 9	11 2

## LACHINE CANAL.

STATEMENT of Fines and Damages collected during the Fiscal Year  
ended 30th, June, 1883.

Date.	Name of Vessel.	Master or Owner.	Fines.	Damages.	Total.
1882.			\$ cts.	\$ cts.	\$ cts.
July 5	F. L. T. Adams.....	E. Jefe.....	4 00		
Sept. 5	Barge Dorchester.....	St. L. & C. F. Co.....	10 00	30 00	
" 9	Prop. "Alma Munro".....	J. H. Scott.....	10 00		
" 20	McCuaig.....	Murphy.....	20 00		
Nov. 1	Barge Florella.....	H. Cassidy.....		15 00	
" 22	Steamer I. K. Hard.....	S. St. Denis.....		2 00	
1883.					
May 11	Barge Ned.....	James Whelan.....	10 00	81 20	
June 21	Draws Square Oak.....	Collins Bay Co.....	4 00		
			\$58 00	\$128 00	\$186 20

M. CONWAY,  
*Superintendent.*

LACHINE CANAL OFFICE,  
MONTREAL, July, 1883.

## LACHINE CANAL.

STATEMENT of Amounts collected for Wood, Rent and Wintering Vessels, during the  
Fiscal Year ended 30th June, 1883.

Date.	Items.	Number.	Rate.	Amounts.
1882-83.			\$ cts.	\$ cts.
	Firewood.....			1,027 78
	Wintering vessels.....			212 66
	Total.....			1,240 44

JOHN O'NEILL,  
*Collector.*

COLLECTOR'S OFFICE,  
MONTREAL, 3rd July, 1883.

## LACHINE CANAL.

STATEMENT of Basin, Firewood, Fines and Bank Dues, &c., collected during the Fiscal Year ended 30th June, 1883.

Date.	Items.	Amount.
1882-83.		\$ cts.
	Basin dues.....	892 59
	Firewood dues.....	113 52
	Bank dues.....	121 00
	Sale of abandoned barge.....	30 75
	Collected from Muir & Sons for removing coal.....	25 46
	Total .....	1,183 32

M. CONWAY,  
*Superintendent.*

LACHINE CANAL OFFICE,  
MONTREAL, July, 1883.

## BEAUHARNOIS CANAL.

STATEMENT of Fines and Damages collected during the Fiscal Year ended 30th June, 1883.

Date.	Name of Vessel.	Master or Owner.	Fines.	Damages.	Total.
1882.			\$ cts.	\$ cts.	\$ cts.
Sept. 10	Propeller "Alma Munro".....	Capt. Scott.....	40 00		
do 26	Barge "Wheat Bin".....	Montreal Transportation Co....		5 00	
Oct. 25	Steamer "Chieftain".....	Calvin & Son.....	5 00		
do 25	Propeller "Europe".....	— Sullivan.....		20 00	
Nov. 18	Barge "Montreal".....	Montreal Transportation Co....		14 15	
1883.					
May 16	Propeller "Prussia".....	— Chesnut.....		6 00	
June 25	do "City of Montreal".....	— McQuordale.....		14 00	
			45 00	59 15	104 15

J. F. BÉRIQUE,  
*Superintendent.*

BEAUHARNOIS CANAL OFFICE,  
MELOCHEVILLE, July, 1883.

## CHAMBLY CANAL.

STATEMENT of Fines and Damages collected during the Fiscal Year ended 30th June, 1883.

Date.	Name of Vessel.	Master or Owner.	Number.	Damages.	Total.
1882.			\$ cts.	\$ cts.	\$ cts.
July 4	St. Josephh .....	N. Lamy .....	.....	5 00	
Sept. 11	.....	H. Boivin .....	1 00		
do 18	.....	A. Deschamps .....	1 00		
do 19	L'Exportation .....	J. Caron .....	2 00		
	Total .....	.....	4 00	5 00	9 00

C. ULRIC,  
*Superintendent.*

CHAMBLY CANAL OFFICE,  
CHAMBLY, July, 1883.

## No. 2.

## OTTAWA RIVER CANALS.

## REPORT FOR THE FISCAL YEAR ENDING 30TH JUNE 1883.

SIR,—I have the honor herewith to hand you my Report for the fiscal year ending 30th June, 1883, upon the various works I have in charge under the head of maintenance.

I have the honor to be, Sir,  
Your obedient servant,

D. STARK,  
*Superintending Engineer, O. R. C.*

A. P. BRADLEY, Esq.,  
Secretary Department Railways and Canals.

## MAINTENANCE.

## STE. ANNE'S CANAL.

The navigation was closed here on the 30th November 1882 and reopened on the 30th April, 1883.

No interruptions to its regularity have occurred, and the only accident to be recorded is the sinking of an old large called the "Faith" which struck a shoal and went down in the channel above the lock. It was quickly removed, however, and inflicted no inconvenience on the navigation.

The booms between the piers across the shoal below the canal have been repaired, and a pier, for the moving of barges near the entrance of the channel enclosed by them which was much wanted, has been built.

The usual repairs have also been executed to lock gates, wharves, mooring posts &c., and some necessary pointing has been done to the walls of the old lock.

The house in which the Collector lives underwent some necessary repair and had to be bodily raised a couple of feet to meet the higher elevation of the ground around it, caused by the additional height given to the walls of the new lock.

A couple of boom piers have likewise been put in above the new lock for the better guidance of vessels, and the old guide lights have been repainted and otherwise repaired.

#### CARILLON CANAL.

This canal was closed on the 27th November, 1882, and re-opened on the 28th April, 1883.

No interruptions have been caused to the traffic throughout the year.

No repairs have been called for. Some necessary fencing, about the new locks, wharves and guide piers, has been erected, and some grading has been done.

Watch-houses have been also put up for the lock-laborers.

Such public roads as are under the control of Department have received attention in the way of grading and fencing repairs. In view of the fact that the old canal is now entirely disused, and that these roads are so far from the new one, that they have not, and never can have, anything to do with it, being therefore entirely abandoned for canal purposes, it becomes a question whether they should not be handed over, as others have already been, as regards their future maintenance, to the municipality in which they may happen to be situated.

The old canal was finally abandoned on the 27th August, 1882.

#### CHUTE A BLONDEAU.

Closed on the 27th November, 1882; re-opened 28th April, 1883. The old lock here is still of use, notwithstanding its dilapidated condition, many of the steamers employed in towing being unable to stem the current which yet exists at the Chute.

Heavy repairs had to be made to the lock masonry and mitres, &c., and new balance beams have been provided for the gates. Provision was also made in the spring for the raising of the lock in the event of an excessive rise in the river level. The work was not, however, required. The question of the more effective accommodation of ascending traffic at this point will have to be considered, as during high water in the Ottawa the strength of the current is such as to render recourse to the old lock a matter of necessity. There are two modes of meeting the case; one being the establishment of a permanent chain tug at a suitable point, and the other the construction of a canal and locks affording the same area of waterway and the same depth as those now built at Carillon.

#### GRENVILLE CANAL.—GREECE'S POINT.

Closed on the 27th November, 1882; re-opened 1st May, 1883.

The old locks, with some rather extensive repairs to the gates and their machinery, have performed their work well this year at the canal entrance.

The upper lock of the enlargement was ready for the opening of navigation, rendering no longer necessary the two old combined ones at this point, which, owing to their extremely dilapidated condition, and their close proximity to the new works, had long been a source of anxiety with respect to the navigation. All traffic during the season has been passed through the new lock, the working of which has been satisfactory.

Between Greece's Point and Grenville no repairs of consequence have been called for, in so far as the locks are concerned, but a considerable amount of work had to be bestowed upon the fencing, towpaths and berm banks, as well as upon the riprap along the slopes.

I have to mention that this canal labors under a good deal of inconvenience from the meeting of vessels and tows at points other than those which were widened out during its construction to act as passing places. The rule seems to be that meetings seldom occur at those intended points of passing, and the consequence is frequent cases of confusion and delay.

It is possible that in view of the increased size of their steamboats and barges now contemplated by forwarders, the widening of the narrow portions of the canal to the present dimensions of those crossing places may before long have to be undertaken.

#### CULBUTE CANAL.

Here the locks and dams are in good order. The draw bridge at Chapeau called for some repairs.

The dam at Rocher Fendu Rapids was completed on the 2nd of March last, and this and the one at the Grand Calumet Falls are now performing the service required of them.

There is every prospect of obtaining from these works the results hoped for, but extreme low water in the Ottawa River can alone settle this point satisfactorily.

There has been no traffic.

D. STARK,  
*Superintending Engineer, O. R. C.*

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#### CONSTRUCTION.

##### STE. ANNE DE BELLEVUE.

During the year the entire work of construction comprised in the contract of Baskerville and Co., was completed, save some trimming, finishing and levelling.

The lock masonry was completed, and all about the lock, with the exception of the gates, was got ready for navigation, and these last are now in place. All the retaining walls, both above and below the lock, to the limits of the unwatered work are built, and the portions beyond these (of no great extent) would have been so also, but for the unusual height at which the water in the river has remained this year, which has prevented the proper setting of the foundation cribs.

The completion of these portions of retaining wall together with the placing of mooring posts and general levelling up, comprise all remaining to finish the contract of Baskerville and Co., and once the work can be begun a very short time will see it finished.

In the month of September last, a contract for straightening the channel above the upper lock was entered into with E. E. Gilbert and Son, who at the same time began the construction of a dredge, with improvements which they claim will enable them to perform the work rapidly, but it has not yet been set to work, though it is expected to be so by the end of the month of August.

Their drill machinery, however, has been in use since the beginning of June, boring into and blasting out the bottom of the channel in preparation for the dredge.

##### CARILLON CANAL.

During the first portion of the fiscal year, the contractors, Messrs. R. P. Cooke and Co., finished what remained to be done to the main embankment, forming the canal between the locks; and last winter they built the finishing ramp connecting the new and old canals at the lower entrance.

This completed their contract, with the exception of a small quantity of excavation still remaining to be done at the lower entrance to bring it to the specified depth.

Between the middle of February and the beginning of May, five temporary crib piers with booms between them were erected on the south side of the upper entrance to the canal, extending a distance of 800 feet westward from the end of the guide pier, for the better guidance of vessels descending the river, and as a precaution against their being drawn into the current outside the guide pier and so carried over the dam. They have well answered the purpose intended, and will continue to do so until the completion of the new entrance extension inside of Dewars Island renders them of no further use. 1,100 feet in length of boom has been also constructed and placed along the sharp jutting edge of the rocks along the north shore of this channel, for the protection of vessels and barges.

#### CARILLON DAM.

Nothing has been done to this dam during the year but staunching, carried out by filling in above it with stone and gravel.

During high water of early summer, three cribs forming a portion of the dam on the northern side of the main or centre channel were undermined and carried away, leaving a gap in the length of the dam of 58 feet. These cribs or piers were 10 feet wide each, with openings of seven feet between them, filled in with gates. This gap will have to be closed as quickly as possible, and the stone filling above the dam should be continued next winter in order to ensure future permanency. A very considerable quantity of this stone filling is still needed.

#### SLIDE.

In the course of last winter, and during the summer also, eight new guide piers and five new booms have been built above the slide, forming an extension of its entrance to a distance of 2,300 feet from the dam. The object was to secure greater immunity from danger to approaching rafts in their missing the mouth of the entrance, and at the same time, by placing the booms in a more up and down stream position than they formerly held, to obviate the risk of their being leaped over or broken through by the impetus of rafts or timber.

#### GRENVILLE CANAL—GREECES' POINT.

The works here during the fiscal year, comprises the completion of the upper new lock and its approach, the laying of the foundation of the lower one, with two courses of masonry round it, and earth and rock excavation in the canal prism. About two-fifths of the entire masonry in the upper lock was built during this year, and the whole structure was ready for the opening of navigation in spring, the two old locks it replaces having been filled up during the winter with spoil from the excavation of the middle reach. A waste weir was also built, and got ready for service at the same time. It is now hoped that both the remaining lock and the lower reach will be opened for traffic this fall, but in any case there can be no question as to the certainty of their being ready for use next year.

#### GRENVILLE ENTRANCE.

Here the works are confined to the completion of a wharf, and the building of retaining walls on either side of the entrance.

A portion of this wall had been laid during the winter of 1881-82, and the intention was to have proceeded with the work during the following summer, but unfortunately the water during that year never fell sufficiently low to admit of the carrying out of the proposition.

About the beginning of September, the contractor made arrangements for getting stone for these walls from a quarry near L'Orignal, that in the canal having been found unfit, and during the remainder of the navigable season he brought stone

from that quarry. On the closing of this, he discovered a quarry not far from Grenville, producing stone of a satisfactory description, and between this and Ross' quarry near Greeces' Point, he kept the work going, and finished both the walls by the beginning of April last. They are not yet quite done with; the long continuance of high water in the Ottawa River having prevented our prudently filling up behind them, but low water is all that is waited for to get them quickly out of hand.

This with the removal of a small quantity of material in the immediate entrance, by dredging, which the high state of the water prevented his taking out last spring, is all that is left here for the contractor to do.

#### CULBUTE CANAL.

With the completion of the Rocher Fendu dam on the 2nd March last, all the work involved in the construction of this canal was finished.

D. STARK,

*Superintendent and Engineer, Ottawa River Canals.*

### No. 3.

#### CORNWALL CANAL.

CORNWALL 13th August, 1883.

SIR,—I beg to enclose herewith my Annual Report for the fiscal year ended the 30th of June, 1883. Also statement showing the highest and lowest depths of water on the lower sill of Lock No. 15 and upper sill of Lock No. 21.

I have the honor to be, Sir,

Your obedient servant,

D. A. McDONELL,

*Superintendent.*

A. P. BRADLEY, Esq.,

Secretary Railways and Canals, Ottawa.

CORNWALL, 13th August, 1883.

SIR,—I have the honor to submit the following Annual Report on the works under my charge for the fiscal year ended June 30th, 1883 :

The Cornwall Canal has been maintained in an efficient state, and no accident occurred during the year.

The canal was closed by ice on December 6th, 1882, and opened again for traffic on 28th April, 1883.

The works in progress during the past year will come under the head of repairs. Rebuilding one pair of lower gates, and general repairs to all lock gates in use; making four new wicket gates for supply weirs; four new foot bridges for lock gates; thirty-six new brackets for gates, and eight new sheaves; raising slopewalls, cleaning side ditches and drains and roadways through culverts; pointing lockwalls, &c., &c.

Making such repairs to the lower recess of Lock No. 18, by concreting and planking as time would permit before opening of navigation.

This foundation will require considerable work next spring.

I have the honor to be, Sir,

Your obedient servant,

D. A. McDONELL,

*Superintendent.*

STATEMENT showing the depth of river water on the mitre sills of Lock No. 15, at lower entrance, and Lock No. 21 at upper entrance, during the Fiscal Year, ended 30th June, 1883.

	Lock No. 15, Lower Sill.		Lock No. 21, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1882—July .....	11·4	11·2	11·6	11·0
August.....	11·3	10·11	11·4	10·8
September.....	11·6	10·6	11·2	10·0
October.....	10·6	10·0	10·6	9·9
November.....	10·2	9·7	10·2	9·3
December... ..	10·8½	9·8	10·7	9·1
1883—January.....	28·0	9·10½	9·11	8·3
February.....	21·7	18·11	9·10	8·2
March.....	21·5	16·2	10·2	8·5
April.....	16·0	10·7	10·10	8·11
May.....	11·3	10·8½	10·10	9·4
June.....	11·10	11·1	11·7	11·0

D. A. McDONELL,  
*Superintendent.*

#### No. 4.

#### WILLIAMSBURGH CANAL.

MORRISBURGH, 10th August, 1883.

SIR,—I have the honor to submit my Report on the working and condition of the Williamsburgh Canals under my charge, for the fiscal year ending 30th June, 1883.

These canals which embrace the Farran's Point, Rapide du Plat, Point Iroquois Junction and Galops Canals, were closed for the season on the 11th December, 1882, and re-opened for traffic on 1st May, 1883. No interruption or delay occurred during the season of navigation.

#### FARRAN'S POINT CANAL.

The work on this canal consisted in repairs to the lock gates, crabs on lock and sheaves in chain holes, new lamp posts, and repairs to the piers and banks. Timber has been got out for re-building a portion of the dock, which will be proceeded with during the season. The ice breaker at the foot of the canal will require to be repaired.

The banks of this canal are in good repair.

#### RAPIDE DU PLAT CANAL.

The upper gates of Lock No. 24 were taken out and re-built during the winter, new valves and rollers were placed in them. Some repairs were also done to the lower gates of this lock, and all were put in good repair and order. Some repairs were also done to the lower gates of Lock No. 23. The pier at the head and the dock at the foot of the canal were repaired; the pier at the head will require some further repairs during the current year; repairs by stoning were done to the banks. This canal requires dredging in several places.

By dredging the slip on the inside of the dock at the foot of this canal vessels could load and unload at the wharf on the inside of this slip, without in any wise interfering with the outer wharf or dock leading to the lock, this would be of much convenience both to the shippers and vesselmen, as from the situation of the wharf a vessel loading or unloading at the outer wharf is obliged to move on the approach of a vessel about to enter the lock, causing delay and loss of time. The Government Wharf or Dock at the foot of the canal is the only wharf at this place.

POINT IROQUOIS JUNCTION AND GALOPS CANAL.

Repairs were done to the general lock gates on these canals. New rollers were placed under the gates at Lock No 27, and new sheaves placed in chain hole. Repairs were made to the swing bridges, and a new track was laid for bridge over Lock No. 26, a storehouse was erected at Lock No. 27, in place of the one destroyed by the storm on the 14th September, 1882, reported in my letter of the 28th of that month, and the roof of Lockmaster's house, unroofed by the same storm, was repaired and resingled. Portions of the pier at the head of the Galops and the dock at the foot of Point Iroquois Canal were repaired; these repairs will be continued during the current year.

The Government ditch on the north side of the Point Iroquois Canal was cleaned up and the stone wall continued to within a short distance of the Nine Mile road, west of the village of Iroquois; this wall will be completed this fall.

The booms on the Point Iroquois Canal were put in good repair this spring; the banks of these canals have been further protected by stoning, and a small pier was built in the northern bank of the Galops Canal, where a portion of the bank was in danger of sliding, so as to prevent such an accident.

The buoys in the River St. Lawrence, between Johnston and Dickinson's Landing, under my charge, were replaced this spring.

The water in the River St. Lawrence being high, furnished a full depth to the canals during the greater part of the season of navigation.

I annex a statement showing the extreme depths of water on the mitre sills of the several locks during the year ending 30th June, 1883.

I have the honor to be, Sir,  
Your obedient servant,

A. G. MACDONELL,  
*Superintendent, Williamsburgh Canals.*

A. P. BRADLEY, Esq.,  
Secretary, Department of Railways and Canals, Ottawa.

## WILLIAMSBURG CANALS.

STATEMENT showing the extreme depth of Water on the Mitre Sills of the several Locks, during the Year ended 30th June, 1883.

## FARRAN'S POINT CANAL.

Months.	Lower Sill, Lock No. 22		Months.	Lower Sill, Lock No. 22.	
	Highest.	Lowest.		Highest.	Lowest.
1882.	Ft. In.	Ft. In.	1883.	Ft. In.	Ft. In.
July .....	11 3	11 0	January .....	8 8	7 6
August .....	11 0	9 8	February .....	7 8	7 6
September .....	9 7	9 0	March .....	7 10	7 6
October .....	9 2	8 8	April .....	9 0	7 8
November .....	8 9	8 6	May .....	9 8	8 8
December .....	9 0	8 5	June .....	10 10	9 6

## RAPIDE DU PLAT CANAL.

Months.	Lower Sill, Lock No. 23, head of Canal.		Months.	Lower Sill, Lock No. 24, foot of Canal.	
	Highest.	Lowest.		Highest.	Lowest.
1882.	Ft. In.	Ft. In.	1882.	Ft. In.	Ft. In.
July .....	11 3	10 9	July .....	10 9	10 3
August .....	10 11	10 3	August .....	11 0	10 0
September .....	10 3	9 3	September .....	10 6	9 3
October .....	9 8	8 9	October .....	9 9	9 0
November .....	9 6	7 11	November .....	9 3	8 3
December .....	9 7	8 0	December .....	10 0	8 0
1883.	Ft. In.	Ft. In.	1883.	Ft. In.	Ft. In.
January .....	9 0	7 3	January .....	9 3	6 0
February .....	8 2	6 0	February .....	7 10	4 0
March .....	8 3	7 3	March .....	8 3	7 0
April .....	9 11	7 10	April .....	10 3	8 3
May .....	11 4	8 4	May .....	11 6	8 3
June .....	11 3	10 6	June .....	12 3	10 3

## POINT IROQUOIS AND GALLOPS CANAL.

Month.	Lower Sill, Lock No. 25, foot of Point Iroquois.		Months.	Upper Sill, Lock No. 27, head of Gallops	
	Highest.	Lowest.		Highest.	Lowest.
1882.	ft. in.	ft. in.	1882.	ft. in.	ft. in.
July.....	14 0	13 3	July.....	11 10	10 10
August.....	14 0	12 8	August.....	11 1	10 6
September.....	13 6	11 6	September.....	10 9	9 11
October.....	12 9	11 0	October.....	10 4	9 6
November.....	12 6	10 10	November.....	10 3	9 0
December.....	13 6	10 6	December.....	10 6	8 9
1883.			1883.		
January.....	12 4	8 6	January.....	9 4	6 9
February.....	10 2	8 2	February.....	8 3	7 1
March.....	10 6	8 6	March.....	9 0	8 3
April.....	12 10	10 6	April.....	10 3	8 6
May.....	13 7	11 0	May.....	12 0	9 4
June.....	14 0	13 2	June.....	11 6	10 10

A. G. MACDONELL,

*Superintendent, Williamsburgh Canal,*

MORRISBURGH, 10t August, 1883.

## No. 5.

SUPERINTENDENT'S OFFICE,

ST. CATHARINES, 17th September, 1883.

SIR,—I have the honor to submit my Report on the conditions of working of the two canals—the Old and New—for the year ending 30th June, 1883.

## THE NEW CANAL.

The canal has been operated satisfactorily throughout the year and without any serious accident, except in one instance, when the schooner "Midland River" ran into and displaced the superstructure of the Welland Junction Bridge.

Many of the canal and reservoir banks, being of great height, subsided to some extent. I have, however, raised most of them to their full height again, and have also found it necessary to widen them in a few places.

The lock gates and valves work well throughout. The water wheels open the gate valves very quickly, filling and emptying the large locks in from eight to ten minutes.

The St. Catharines and Welland Canal Gas Company, have completed the works connected with their contract for lighting the Canal from Port Dalhousie to Guard Lock, Thorold, in a satisfactory manner, affording a brilliant and ample supply of light.

Several large propellers, steam barges and schooners have passed through the canal for the first time, carrying from 40,000 to 60,000 bushels of grain.

The banks of the canal and reservoirs between Port Dalhousie and the Guard Lock at Thorold, have been faced with stone throughout, thus preventing any further washing away of the slopes.

Trees have been planted both sides of the canal between Port Dalhousie and Lock 25, Thorold, and in a few years will prove a great protection to vessels from the windstorms which now occasionally render it necessary to tie up vessels until calmer weather arrives.

The experiment of sowing the banks of canals and reservoirs with grass seed has been tried successfully in several places, which would otherwise be occupied by thistles, the expense of cutting these weeds on the whole of the works under my charge has amounted to \$1,100 during the past season.

The canal was closed on the 5th December, 1882, and opened on the 5th May, 1883.

I have established a system of Semaphore Signals at suitable distances above and below the existing aqueduct, to control the movement of vessels when the water is low in the same. I have also erected another at the curve near Humberstone Bridge, to guide approaching vessels and prevent collisions.

## DETAILS OF WORK OF REPAIR AND MAINTENANCE ON THE NEW CANAL.

### DIVISION NO. 1.

#### *From Port Dalhousie Harbor to foot of Lock 13.*

##### *Port Dalhousie Harbor.*

Renewing and rebuilding parts of west pier and putting in snubbing posts. The pier on the west side of the harbor is all decayed and should be rebuilt, 324 feet fencing built, to enclose the Government property.

##### *Lock No. 1, Bridge and Level.*

One hundred and fourteen piles for spare gate berths sharpened and driven, cut off piles and capped same with timbers, and bolted on cross timbers for spare gates to lay on.

Put floating fenders each side of bridge and chains to same, cross planked aprons each end of floats to prevent tow horses slipping, faced up foot of Lock 2 waste weir with stone where gullied out.

Built and placed in position W. C. for use of lock and bridge tenders.

Put on safety locking gear to hold back foot gates in recess.

##### *Lock No. 2 and Level.*

Waste weir bridge made wide to allow teams to cross, banks harrowed and levelled up, also sown with grass seed.

Faced slopes of canal and reservoir banks with stone. Front and apron paved with stone to prevent washout.

Built and placed in position W. C.

Put on safety locking gear.

##### *Lock No. 3 and Level.*

Lock cleaned out, mud pockets thoroughly repaired, mud sills placed a short distance from front of foot gates to prevent rubbish, stone, &c., &c., from being washed between mitre sills and gates. Banks harrowed and levelled up and sown with grass seed. Trees planted along one side of level. Put on safety locking gear. Built and placed in position W. C. Faced slopes of canal and reservoir banks with stone.

*Bridge No. 2.*

Adjusted several times.

*Lock No. 4 and Level*

Lock cleaned out, mud pockets thoroughly repaired, mud sills placed a short distance from front of foot gates to prevent rubbish, stone, &c., &c., from being washed between mitre sills and gates. Banks and slopes harrowed and levelled up, and sown with grass seed. Trees planted throughout. Built and placed in position W. C. Faced slopes of canal and reservoir banks with stone. Put up safety locking gear.

*Lock No. 5 and Level.*

Lock cleaned out, mud pockets thoroughly repaired, mud sills placed a short distance from front of foot gate to prevent rubbish, stones, &c., &c., from being washed between mitre sills and gates. Banks raised and graded, banks and slopes harrowed and levelled and sown with grass seed. A bad slide occurred in west side bank, foot of Lock 5, level was drawn off, banks faced and stoned up from bottom of canal; faced slopes of canal and reservoir banks with stone; trees planted throughout; 678 feet fencing built to secure Government property. Built and placed in position W. C. Put on safety locking gear.

*Lake Street Bridge.*

Approach to bridge made wider. Repaired bridge, drove additional cluster piles at each end of rest pier, put walings around and braces between piles, and bolted all together. Put floating fenders and chains along sides of bridge and pier. Bridge tender's house brought from old canal and placed on stone foundation. Built and placed in position W. C.

*Bridge No. 4—Welland Railway.*

Drove additional clusters piles at each end of rest pier; put walings around and braces between piles, and bolted all together.

Put floating fenders and chains along side of bridge and pier. Bridge tender's house brought from old canal and placed on stone foundation. Built and placed in position W. C.

*Lock No. 6 and Level.*

Foot gates taken out, track and segment taken up, floor levelled for track circle, iron plate put under steps to raise them, gate resteped, sunken scow loaded with stone removed. Banks raised and graded. Locks cleaned out, mud pockets thoroughly repaired. Mud sills placed a short distance from front of foot gates to prevent rubbish, stone, &c., from being washed between mitre sill and gates. Banks harrowed, levelled and sown with grass seed. Trees planted throughout. Built and placed in position W. C. Faced slopes of canal and reservoir banks with stone; 2,949 feet fencing built to enclose Government property. Put on safety lock gearing.

*Geneva Street Bridge (No. 5.)*

Drove additional clusters piles at each end of rest pier; put walings around and braces between piles, and bolted altogether. Put floating fenders and chains along sides of bridge and pier. Built and placed in position water closet. Bridge tender's house brought from old canal and placed on stone foundation; 240 feet fencing built to bridge approaches.

*Lock No. 7 and Level.*

Wing-walls, head of lock, raised; pipes put through banks to supply farmers along same with water, the original supply being cut off by the building of the canal; banks raised and graded; foot gates taken out; track segment levelled up; iron plates put under steps to raise gates; gates re-stepped into place; lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates, to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates; banks harrowed, levelled up and sown with grass seed; trees planted throughout; built and placed in position W.C.; put on safety locking gear.

Faced slopes of canal and reservoir banks with stone.

1,196 feet fencing built.

*Niagara Street Bridge (No. 6.)*

Drove additional cluster piles at each end of rest pier; put walings around and braces between piles, and bolted all together; put floating fenders and chains along sides of bridge and pier; built and placed in position W.C.; bridge tender's house brought from old canal and placed on stone foundation.

*Lock No. 8 and Level.*

Banks raised and graded; lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates; foot gates taken out; track removed; segment levelled up; boiler plate put under steps to raise gates; gates re-stepped.

Snubbing posts raised and re-set; slopes of canal and reservoir banks faced with stone; trees planted throughout; put on safety locking gear; banks harrowed, levelled up and sown with grass seed; built and placed in position W.C.

*Lock No. 9 and Level.*

Lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates, to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates; trees planted throughout; faced slopes of canal and reservoir banks with stone; built and placed in position water closet; put on safety locking gear.

*Queenston Road Bridge (No. 7.)*

Drove additional cluster piles at each end of rest pier; put walings around and braces between piles and bolted all together; bridge tender's house brought from old canal and placed on stone foundation; 450 lineal feet dressed cap and rail approach put up at this important crossing, and painted three coats; also three gates.

*Lock No. 10 and Level.*

Banks raised and graded; lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish, stone &c., &c., from being washed between mitre sills and gate; snubbing posts raised and reset; trees planted throughout; built and placed in position, W. C.; put on safety locking gear.

Faced slopes of canal and reservoir banks with stone.

*Homer Road Bridge (No. 8.)*

Drove additional cluster piles at each end of rest pier; put walings around and braces between piles and bolted all together. Bridge tenders house brought from old canal and placed upon stone foundation; 721 feet fencing built.

*Lock No. 11 and Level.*

Banks raised and graded; lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish and stones from being washed between mitre sill and gates; foot gates taken out; track removed; segments levelled up; boiler plate put under steps to raise gates; gate resteped.

Snubbing posts raised and re-set; built and placed in position, W. C.

Faced slopes of canals and reservoir banks with stone; banks harrowed, levelled up and sown with grass seed; trees planted; put on safety locking gear.

*Lock No. 12 and Level.*

Lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish, stone, &c., &c., from being washed between mitre sill and gates; faced slopes of canal and reservoir banks with stone.

Put on safety locking gear; built and placed in position, W. C.

Trees planted throughout.

## DIVISION No. 2.

*From foot of Lock No. 13 to Allanburg Bridge.**Lock No. 13 and Level, and Bridge No. 9.*

Banks raised and graded; foot gates taken out; track removed; segments levelled up; boiler plate put under steps to raise gates; gates re-stepped.

Lock cleaned out; mud pockets thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish and stones from being washed between mitre sill and gate; built and placed in position, W. C.

Slopes of canal and reservoir banks faced with stone.

One hundred and thirty rods fence built to approaches of bridge No. 9; trees planted throughout; put on safety locking gear. Waste weir bridge made wider to allow teams to cross.

*Lock No. 14 and Level.*

Lock thoroughly cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly overhauled and repaired.

Mud sills placed a short distance from front of foot gates to prevent rubbish, stones, &c., &c., from being washed between mitre sills and gates; well holes planked with oak plank to prevent wearing out of cables.

Slopes of canal and reservoir banks faced with stone.

Built and placed in position, W. C.; put on safety locking gear.

*Lock No. 15 and Level.*

Lock cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly overhauled and repaired, mud sills placed a short distance from front of foot gates, to prevent rubbish, stone, &c., &c., from being washed between mitre sill and gates.

Well holes planked with oak plank to prevent wearing out of cables.

Faced slopes of canal and reservoir banks, with stone; built and placed in position, W.C.; put on safety locking gear; trees planted throughout.

*Lock No. 16 and Level.*

Lock cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly overhauled and repaired.

Mud sills placed a short distance from front of foot gates to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates; well holes planked with oak plank to prevent wearing out of cables.

Built and placed in position, W. C.

Slopes of canal and reservoir banks faced with stone; banks raised and graded; trees planted throughout.

Cleared out great accumulation of mud, &c., from highway tunnel, and opened drains, and built plank sidewalk 321 feet long, two plank wide under tunnel, always wet and muddy.

Built and placed in position, W. C.; 57½ rods of fence built to close out cattle; put on safety locking gear.

#### *Lock No. 17 and Level.*

Built new store house 18 by 24, and painted same.

Lock cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly overhauled and repaired.

Mud sills placed a short distance from front of foot gates, to prevent rubbish, stone, &c., &c., from being washed between mitre sill and gates.

Well holes planked with oak plank to prevent wearing out of cables; built and placed in position, W. C.

Banks raised and graded; slopes of canal and reservoir banks faced with stone; put on safety locking gear; trees planted throughout.

#### *Lock No. 18 and Level.*

New waling put on one lock gate; banks harrowed, levelled up and sown with grass seed; lock cleaned, and valves, lifting rods, turbine wheels, shafting, &c., &c., thoroughly repaired.

Mud sills placed a short distance from front of foot gate, to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates; well holes planked with oak plank to prevent wearing out of cables; built and placed in position, W. C.

Faced slopes of canal and reservoir banks with stone; trees planted throughout; put on safety locking gear; waste weir bridge made wider to allow teams to cross.

#### *Lock No. 19 and Level.*

Foot gate taken out, track removed, segments levelled up, boiler plate put under steps to raise gates; gates resteped.

Banks harrowed, levelled up and sown with grass seed.

Lock cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly repaired; mud sills placed a short distance from front of foot gates, to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates.

Well holes planked with oak plank to prevent wearing out of cables; built and placed in position, W. C.

Faced slopes of canal and reservoir banks with stone.

Trees planted throughout; put on safety locking gear.

Waste weir bridge made wider to allow teams to cross.

#### *Lock No. 20 and Level.*

Lock cleaned out; valves, lifting rods, turbine wheels, shafting, &c., thoroughly repaired; mud sills placed a short distance from front of foot gates to prevent rubbish, stones, &c., &c., from being washed between mitre sill and gates. Well holes planked with oak plank; built and placed in position W. C.; faced slopes of canal and reservoir banks with stone. Banks harrowed, levelled up and sown with grass seed; trees planted throughout. Put on safety locking gear; waste weir bridge made wider to allow teams to cross.

*Lock No 21 and Level.*

225 feet 8 inches drain pipes laid in foot of slope; banks widened and graded up and down with grass seed.

Lock cleaned out; valves, lifting rods, &c., &c., thoroughly repaired; mud sills placed a short distance from front of foot gates. Well holes planked with oak plank; built and placed in position W.C. Put on safety locking gear; trees planted throughout. Faced slopes of canal and reservoir banks with stone; waste weir bridge made wider to allow teams to cross.

*Lock No. 22 and Level.*

Lock cleaned out; valves, lifting rods, &c., &c., repaired; mud sills placed a short distance from front of foot gates. Well holes planked with oak plank; built and placed in position W.C.

Banks harrowed, levelled up and down with grass seed; trees planted throughout. Put on safety locking gear.

Faced slopes of canal and reservoir banks with stone.

*Lock No. 23 and Level and Quarry.*

Soakage water through canal banks drained off to prevent slides.

Lock cleaned out; valves, lifting rods, &c., &c., thoroughly repaired; mud sills placed a short distance from front of foot gates. Well holes planked with oak plank.

Banks harrowed, levelled up and sown with grass seed; trees planted throughout; put on safety locking gear.

Built and placed in position W.C. Faced slopes of canal and reservoir banks with stone.

Built wharf 175 feet long, 40 feet wide, and wing 22 feet by 66 feet for loading scows with stone for facing banks, weir, aprons, &c. &c.

Built one three-ton derrick and put it in place.

*Lock No. 24 and Level and Bridge No. 10.*

Soakage water through canal banks drained off to prevent slides. Built store house 18 by 24 feet, and painted same.

Lock cleaned out; valves, lifting rods, &c., &c., thoroughly repaired; mud sills placed a short distance from front of foot gates. Well holes planked with oak plank.

Banks harrowed, levelled up and sown with grass seed. Trees planted throughout. Put up safety locking gear. Built and placed in position W. C.

Faced slopes of canal and reservoir banks with stone.

Built ten small stone culverts from ditches across tow-path.

*Bridge No. 11.—(Welland Railway.)*

Built solid timber cut water protection extensions to each end of rest pier to protect same from damage by vessels. Put floating fenders and chains alongside of bridge and pier.

Bridge tender's house brought from old canal and placed upon stone foundation.

*Lock No. 25 and Level and Bridge No. 12.*

Turbine wheels, and all shafting, &c., connected with the same were placed for raising valves first time in all gates of this lock.

Banks graded and sown with grass seed; 362 feet fencing built.

Lock cleaned out; mud sills placed a short distance from front of foot gates. Well holes planked with oak plank. Built and placed in position water closet. Put on safety locking gear. Trees planted throughout each side of lock.

Faced slopes of canal and reservoir bank with stone.

Bridge tender's house brought from old canal and placed upon stone foundation.

*Guard Lock and Level to Allanburg.*

Cleaned out Higgin's Culvert, 370 feet long under canal that was filled up almost to the crown of the arch; cut deep ditch from lower end at outlet of same, and laid in 480 feet 12 inch stoneware pipes; filled all up and left complete.

Bridge tender's house brought from old canal and placed upon stone foundation.

*Marlatt's Bridge (No. 13.)*

Fourteen additional clusters piles drove. Put floating fenders and chains each side of bridge and rest pier, and along face of both abutments.

Bridge tender's house brought from old canal and placed upon stone foundation. Adjusting cams and other gearing various times.

*Allanburg Bridge (No. 14.)*

Put floating fenders and chains alongside of bridge and rest pier; adjusting cams and other gearing various times.

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**No. 3.**

FROM ALLANBURG BRIDGE TO AQUEDUCT.

*Welland.*

Ditching and repairing bank, tow-paths, &c., various times.

Built and laid in box culverts under tow-paths; deep cut various places.

Repaired banks north and south quarter bridge, also bridge abutments at Allanburg.

Put dam across foot of waste weir; pumped out water; took down remaining partition, west wing-wall rest having previously fallen down; properly rebuilt same; sheet piled front; faced front of apron with heavy flag stones; faced continuation of west bank with dry stone wall; removed dam and left all complete.

Repaired high banks east and west sides Deep Cut; cleaned out and made ditches along stone road between Allanburg and Port Robinson various times; taking down and rebuilding barn for bridge tenders, Allanburg; repaired abutments, Quaker Bridge; lengthened out and widened same; repaired Port Robinson Bridge approaches with stones, &c., &c.

Cleaned out Port Robinson Lock, and repaired crabs, &c., &c.

Set in numerous snubbing posts and painted same; stripped old ferry scow, and built ferry landings at Port Robinson; painted bridge railings from Allanburg to Welland; faced sundry stretches of canal bank with stone, where dangerously washed away.

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**No. 4.**

FROM WELLAND AQUEDUCT TO PORT COLBORNE HARBOR.

Opened up and cleaned out ditches throughout from time to time; faced up banks in places with stone, and quarried out stone and scowed them to place for same; made approach roadway to air line ferry; caulked up ferry boat; repaired walls in harbor; hauling and setting large number of snubbing posts throughout and painted same.

Framed and put together timbers for winter float bridge at air line ferry, and taking it to place; painted junction bridge; repaired Harbor master's house for the overseers of Division; also lock tender's house at Port Colborne; re-built part of harbor walls with stones that had been displaced and thrown into harbor by vessels; built new semaphore with wire and ratchet attachments to each side of aqueduct at Welland, and put them up 1,700 feet apart.

Built 224 feet timber floats and one semaphore for Humberstone Bridge, and floats along bridge with anchor chains and  $1\frac{1}{2}$  inch iron rods, placed all in position.

Repairing and removing old protection float continually during season of navigation, throughout rock cut; excavated for and laid in pipe drain to draw water from adjoining drowned land at Humberstone.

Painted lock and bridge tender's house; two men employed day and night watching and passing vessels' lines over dangerous parts of Rock Cut.

One new ferry boat built.

### *Generally.*

Put bars across ends of waste weirs to keep cattle off.

A large number of the lock gate cables were broken and cut by heavily loaded vessels passing over them on the lower mitre sills. A check has now been put to this practice. Copper cables were removed from lock gates throughout from time to time as they wore out, and were replaced with annealed crucible cast steel cables, the copper cables being spliced and used again as long as possible.

The lock gate valves, lifting rods, turbine wheels, shafts, clips and all valve gearing, &c., &c., connected with the gates have been constantly over-hauled throughout and kept in order. Numerous gullies washed out in banks made good from time to time.

Gravel was scowed to all Locks throughout, and the clay covered with same.

Two cross head handle levers were made for each Lock throughout to raise valves by hand, in event of turbine wheels becoming frozen, and proved very valuable.

The bottoms of the Lock well holes throughout have been filled with oak planks to prevent cables being destroyed by passing over the rough stones when working the gate. The powerful pontoon or gate litter has been considerably strengthened, rendered necessary since the gates become so much heavier through being water soaked.

When water was drawn off in spring, several valves were found minus their wrist pins, others had been driven in too tight, causing valves to work very hard. The cables were also taken off, repaired and put on again.

A large amount of ditching has been done in various places found necessary, in order to carry off soakage through the canal and reservoir banks, and other surface water. All the bridges throughout have been constantly overhauled and heightened up. Numerous long handle lock rakes and ladders made, and a large number of barrows renewed and repaired.

Before placing the twelve pair of spare gates under water on their respective cradles, the valves were all taken out, and the wrist pins turned down, the bearings of valve leaves turned and dressed off, and all eased and put in again, it being found almost impossible to work the valves, they being too tight.

A large number of snubbing posts were found to be useless, owing to the banks having to be raised, and they had to be taken up, raised and reset.

The experiment of planting trees along the canal banks has been fairly successful, and they will be a great protection to vessels in a few years against windstorms.

Many of the heel posts of the new gates were found to bind very hard against the hollow quoins, and ten pairs have been already dressed off, the remainder will be done as opportunity occurs.

Mile and half mile posts have been placed along east side of the canal throughout, and all the bridges have been numbered. Steel shafts will be substituted by

degrees for the turbine wheels in lieu of the present iron ones, which will soon wear out.

Several waste weirs have been paved with large flat stones, to prevent early undermining the aprons and wing walls.

I have had a new attachment put on the copings at the foot gates of the Locks to fasten the gates back securely into the recess, when the locks are empty, and should any headgates be carried away hereafter, I do not anticipate any more foot gates being carried out as has invariably been the case hitherto. The saving by this inexpensive appliance will be very great, both in money and time.

I have put similar attachments to the foot gates of all the locks on the old canal.

#### *Fines, Damages, &c.*

I have collected during the fiscal year from masters and owners of vessels, also locktenders, the sum of \$971.12 in fines for violation of canal regulations and for damages to the works, which amount has been handed H. H. Collier, Esq., Collector for this port, and I append a statement of the above marked A.

I also append a statement marked B. showing the greatest and least depth of water in the mitre sills at Port Dalhousie and Port Colborne Locks, in each month during the year, also a comparative statement of the average depth for the month of June, 1882 and 1883, which shows the water has been higher by one inch at Port Dalhousie, and two inches lower at Port Colborne than for the same month in the year 1882.

### THE OLD CANAL.

#### FROM PORT DALHOUSIE TO THE JUNCTION WITH THE NEW CANAL AT ALLANBURG.

This canal was closed on the 30th November, 1882, and re-opened on the 5th May, 1883.

The amount of business done on this canal, notwithstanding the opening of the new line, has been very considerable; the facilities it affords for the speedy return of tugs being found of special advantage.

In view of the insecure state of some of the structures referred to in my last annual report, extensive renewals and repairs were necessary. These are now almost completed.

On the withdrawal of the water last spring, it was found that the foundation of the east side of the chamber wall at Lock 17, had been washed out in the vicinity of the mitre sill of the head gates, the gates themselves being undermined by the action of the water to a depth of four feet. This was made good with masonry and concrete work. At least two more locks, however, are in a similar condition and will require treatment next spring.

#### DETAILS OF REPAIRS AND MAINTENANCE OF WORKS ON THE OLD CANAL.

##### *Lock No. 1, Bridge and Level.*

Put in new gate towpath side, put hold back lines and bolts on foot gates, built new bridge and abutments at Martindale's Creek, 48 feet by 16 feet, with heavy railing; widened and raised approaches, and faced same with protection stone a distance of 792 feet. Repaired floating tow path various times; took two new spare gates from gate yard to pond.

##### *Lock No. 2 and Bridge and Level.*

Repaired floats and bridge, raised bridge on pivot; replanked large bridge over weir, put in four new rollers to waste weir, repaired rollers for same, made new slash boards for waste weir; repaired boat house; put in new bents under southern waste weir bridge, and put new rack in front of same and thoroughly repaired valves, &c.; blocked up this and adjoining bridge.

*St. Paul Street Bridge.*

Built 175 feet of framed protection railing, put same up and painted three coats. Put up W. C., repaired and renewed planking, repaired fenderwork, framed planking for bridge, replanked bridge and covered same with old planks for winter, stripped winter covering and put bridge in working order in spring, shifted coping on east side of bridge to bring it in line with railing.

*Canal Office.*

Covered stone steps for winter use with boards, made cases for office papers and did sundry repairs.

*Lock No. 3 and Level.*

Put in two new foot gates, put holdback links and bolts on foot gates to prevent them being carried away in case of accident. Digging out for waste weir wall to be taken down and rebuilt with 11·15 yards new ashlar masonry and 82·26 yards of old work, puddled and filled in behind afterwards. Repaired rollers to waste weirs. Built new bridge across waste weir 60 by 4 feet, covered with 2-inch plank, put on heavy fender and hand railing; painted three coats, put on new slash boards, re-built crib-work at the end of float bridge and repaired floats.

*Lock No. 4 and Bridge and Level.*

Put in six new joists in bridge and renewed some of the planking. Framed new pivot beam, put same in place, replanked bridge various times. Repaired heel approach to bridge, repaired railing of floats. Fitted valve cranks on head gates so as to be taken off at night. Digging out for waste weir walls to be taken down, and rebuilt 19·24 yards new ashlar masonry, 136·15 yards old work puddled and filled in behind again, tore out old shute and built new throughout, 130 feet long, 8 feet 4 inches wide, 2 feet 3 inches deep; sides 5 inches thick, bolted through and lined with jointed inch lumber; the whole thoroughly coated with three coats of black oil, and faced up each side from end to end with dry stone retaining wall and each side of regulating valve, put holdback links and bolts to foot gates. Built new bridge across weir 60 by 12 feet, covered with 3-inch plank. Built new bridge at foot of shute 16 by 13 feet, covered with 3-inch pine plank. Excavated and puddled for above work, put old timber backing behind protection piles and filled up. Repaired lockmaster's house and faced bank of canal with broken stone on west side.

*Lock No. 5 and Bridge and Level.*

Built new bridge across waste weir 120 by 12 feet, put on new caps and covered with 3-inch plank; fitted valve cranks on head gates so as to be taken off at night, put holdback links and bolts to foot gates. Replanked aprons of waste weir. Repaired slash boards of waste weir.

*Lock No. 6 and Level.*

Fitted valve cranks on head gates so as to be taken off at night, put holdback links and bolts to foot gates. Replanked aprons of waste weir; faced up bank and widened east side.

*Hydraulic Race and Aqueduct.*

Built 180 feet long, 5 feet high, dry wall near Lock No. 4.

Built 90 feet long, 6 by 4 feet high.

Raised and replanked bridge at Lock No. 5, and raised all bridges along race to allow ice to pass under. Widened and deepened and sheet piled 138 feet of race back

of hospital, 436 feet of race Division street. Built dry retaining wall in race at Thorold road 186 feet long by 3 feet high and raised banks over same. Repaired bridge at road way. Raised and replanked bridge across race at Concession Road near Lock No. 5. Took down storehouse and removed to gate yard. Cleaned out obstructions throughout.

*Gate Yard, Merritton—and Shop at Thorold.*

Made paper case, canal office; finished and launched two low lift gates; made small boat for gravel scow; repaired crane scow; repaired twenty-three wheel barrows; made two spouts for new canal 16 feet long; dismantled sixteen old gates. Built small boat for crane scow; finished framing and put together one tow path gate for Lock 1; repaired pile driver, painted leader ladders of same; framed two pieces of pine filling for small gates; made twelve small and three large mooring posts, iron capped; painted mile posts, new canal; dismantled crane scow. Hauled out, jacked up and stripped old gates from Lock 11; built one new scow No. 2, 300 tons capacity, 111 feet long, 23 feet beam, 7 feet depth of hold. Built one small boat for scow and one for three mile level. Built new crane scow for lifting lock gates and for general canal service, 78 feet long, 22 feet beam, 6 feet depth of hold, with projecting boom, derrick and fitted with powerful horse power, put new floor and masts in, repaired scow for feeder Division, and painted her. Put new mast and rigging in derrick for Port Colborne Section; altered and fitted up old crane scow for carrying stone and for other canal purposes; cut up all guard lock gates, and took five valves to shop to be repaired; built five new lock gates and re-built three others.

*Lock No. 7 and Bridge and Level.*

Put on holdback links and bolts on foot gates; made and put new sheave blocks, iron capped, on head gates; new balance beam foot gate, tow path side. Re-built the approach to bridge; repaired bridge; fitted valve cranks on head gates so as to be taken off at night. Re-planked aprons of waste weir; repaired heel path bridge at gate yard.

*Lock No. 8 and Level.*

Fitted valve cranks on head gates so as to be taken off at night; put holdback links and bolts to foot gates. Re-planked aprons of waste weir; repaired floats.

*Lock No. 9 and Level.*

Repaired floats, foot of lock. Repaired lock house. Fitted valve cranks on head gates so as to be taken off at night; put temporary bridge across lock for winter travel. Digging out for waste weir walls to be taken down and re-built 12-62 yards new ashlar masonry, 113-11 yards old work puddled and filled in behind again; put holdback links and bolts on foot gates. Re-planked aprons of waste weir; repaired floats; built new bridge across weir, 60 by 4 feet, and painted three coats.

*Lock No. 10 and Level.*

Put on new balance beam, casting new foot board; iron head gate heel path side; repaired lock house. Fitted valve cranks on head gates so as to be taken off at night; put new flooring in kitchen, Lockmaster's dwelling house, raised walls; put holdback links and bolts to foot gates. Re-planked aprons of waste weir, and repaired bridge.

*Lock No. 11 and Level.*

Repaired lock house, put in one new head gate, raised and brought old gate to yard, raised 342 feet of towing path. Fitted valve cranks on head gates so as to be taken off at night, put hold back links and bolts to foot gates, re-planked aprons of waste weir.

*Lock No. 12 and Level.*

Put new timber under and reset new crab foot gate, put new screws and guide rods and made and put two new sheave blocks on gates, put new timber coping on, and water stops. Raised 474 feet towing path, fitted valve cranks on head gates so as to be taken off at night. Re-planked aprons of waste weir, size 16 by 60 feet, put two new sheave blocks, iron capped, finished repairing old gates and repaired mitre sill. Put on holdback links and bars to foot gates.

*Lock No. 13 and Level.*

Sheeted foot gates to prevent leakage, made and put two sheave blocks, iron capped, raised 465 feet towing path, built small gates, finished gate for lock, re-planked aprons of waste weir, size 16 by 60 feet, put on holdback links and bolts to foot gates.

*Lock No. 14 and Level.*

Finished coping, put on water stops, raised 450 feet towing path, re-planked aprons of waste weir, size 16 by 60 feet, put on holdback links and bolts to foot gates.

*Lock No. 15 and Bridge and Level.*

Raised 465 feet towing path, built new barn for lockmaster, made new vault for W. C., repaired dwelling house, filled in wash out, put down new double plank apron to waste weir, size 16 by 60 feet, put on holdback links and bolts to foot gates.

*Lock No. 16 and Level.*

Raised 333 feet towing path, put new floor at head recess of lock, put on holdback links and bolts to foot gates, raised and strengthened embankment washed out by break in Lock 17.

*Lock No. 17 and Level.*

Dug out 20 feet deep back of lock wall to make good undermining of lock wall by concrete; stone puddled, and then filled same up again, put new floor in lock and underpinned mitre sill with stone and concrete where they had been dangerously undermined; put new collar head gates, put on four new crabs waste weir, re-planked aprons of waste weir, size 16 by 60 feet, repaired heel path bridge, built new float 50 feet long, put on new holdback links and bolts to foot gates.

*Lock No. 18 and Level.*

Put new slash boards to waste weir, built and put in new waste weir gates complete, rebuilt abutment to float bridge, bolted down oak timber in front to strengthen masonry and aprons of waste weir, put on holdback links and bolts to foot gates.

*Lock No. 19 and Level.*

Built and put in new waste weir gates complete, built road bridge across race-way 12 by 28, put on holdback links and bolts to foot gates.

*Lock No. 20 and Level.*

Put on holdback links and bolts to foot gates.

*Lock No. 21 and Level.*

Put on one new screw; put in two new snub posts; built new barn for Lock master, 16 by 20 by 12 feet high; built and put in new waste weir gates complete; re-built and strengthened 200 feet fencing; put on hold-back links and bolts to foot gates.

*Lock No. 22—Keefer Bridge and Level.*

Put up new shed to lock tender's house; repaired bridge and re-planked same; put hold-back links and bolts to foot gates; lifted two old gates from pond, and put them on bank to be repaired.

*Lock No. 23 and Level.*

Put on one new screw; digging out behind for waste weir wall to be taken down and re-built; 33 yards new ashlar masonry, and 99·06 yards of old work puddled and filled behind again; built new float and abutment; removed obstruction out of lock, and put new foundation and repaired crib; re-built bridge across waste weir; put on new slash boards, &c.; put on holdback links and bolts to foot-gates; put in row protection piling front of waste weir.

*Lock No. 24 and Bridge and Level.*

Put new iron girders under bridge and renewed underwork and other parts; spliced balance beam; digging out behind for waste weir; walls taken down and re-built 24·24 yards new ashlar masonry and 135·5 yards old work; puddled behind and filled in again; put new floor timber and plank to heel of bridge; built new bridge heel path 13 by 22 feet; put new approach to bridge; built new bridge across waste weir, 47 by 4 feet, with railing; put in one new gate complete; put on new chain and pin fastenings to hold back gates.

*Lock 25, Guard Lock and Three Mile Level.*

Put new anchor and collar on lift lock and two snub posts; built new bulkhead and gates; floored flume to mill pond; built two abutments for float bridge across race; repaired Hurst's and Marlatt's bridges; raised and repaired lock-gate tow path side; put new screw in lock gate; widened raceway; put on hold-back links and bolts to foot gate; put new pivot and needle beams on Marlatt's bridge; put new floor under approaches, and aprons to culverts at Beaver Dam and Davis' Basins; made centres for masons; digging out for and extending stone work Beaver Dam and Davis' culverts west side Beaver Dam, 125·20 yards; east side, 76·26 yards; west side, Davis', 64·13 yards; east side, 41·25 yards; puddled, filled up and graded back of and over new stone masonry work.

*Allanburg Lift-Lock.*

Widened out bank and faced with stone foot of lock, west side.

*Generally.*

The Government scow has been fully occupied taking stone from quarry to fill up the very numerous and dangerous washouts at the pit of nearly all the waste weir aprons. I hope to have them all secured by end of present fiscal year. A large quantity of stripping and quarry waste has been scowed to the points in danger of overflowing, &c.

Blocked up all bridges for winter and took out same in spring.

Raised banks and cleaned out ditches from time to time throughout.

The planking of the aprons of many of the waste weirs has been entirely renewed.

The usual examination and repairs to all the lock gates, machinery, face planking, &c., has been attended to when water was drawn off.

*Feeder Junction to Dunnville and Port Maitland, 23 miles.*

From Dunnville to Stromness and Port Maitland the distance is six and one-third miles, and comprises the following works, viz.—one canal office, one overseer's house, one tollkeeper's house, four swing bridges, five culverts, one very long toll bridge, two locks, one sluiceway, one dam with twenty-six flood gates, one lock-master's house, two bridge shanties, three long waste weirs, one fish ladder, eight stationary bridges, of an aggregate length of 2,200 feet, one harbor, two piers, two breakwaters and about 300 feet of boom.

From Stromness to Boulton Ditch, Marshville, and junction with main line of canal, sixteen and one-third miles, there are:—Three swing bridges, one float bridge, five stationary bridges, with an aggregate length of 150 feet, one sluiceway, one lock, one waste weir, one lock shanty, one lockmaster's house. The supply of water has been better than during the previous year, and the mills have been allowed to run continuously, with the exception of a few days this spring, when the water was drawn down about 8 feet, to prepare for the spring freshet. It was fortunate this precaution was taken, or a serious inundation would have occurred to the country in the vicinity of Dunnville. There have not been any accidents to shipping, and with few exceptions, general satisfaction has been expressed by shippers and mill owners.

*Grand River Flood and Its Consequences.*

The past winter was exceptionally severe along the Grand River and ice formed to an unprecedented thickness. Heavily laden teams used the ice road up to 5th of April. On the 7th a very rapid thaw set in, followed by a flood which the creeks and ditches were not able to discharge (owing to their being frozen up). The water came down, carrying with it long heavy logs, stumps, whole trees, cakes of ice 18 inches thick, and all sorts of rubbish; and, notwithstanding that the water in the Grand River had been previously drawn down as low as it could be (in anticipation of a high flood) on the 11th, it had risen until it was within two inches of the top of the banks. A large number of extra men had to be employed night and day, and used every exertion to keep the waste weirs and flood gates clear of the formidable obstructions above alluded to, some of which, however, came with such force against the protecting piles in front of the toll bridge that five of them were broken. The planks were also tore from the ends of the piers supporting the bridge, and five of the bunters, and split a number of the flood gate posts. The small stone piers in the first and second waste weirs were shifted, and three of them carried away over the new weir. The flood gates were split, more or less, and a number of the valve rods bent. The greater part of the boom timbers were broken and passed over the dam with the driftwood. It will take about \$1,500 to put the works in a good state of repair and I am losing no time in doing so, and am rebuilding the injured stone piers with heavier new stone, and am dowelling them throughout. In order to insure the safety of the extensive and important works in the vicinity there should be additional flood discharge provided by the erection of another waste weir, now that the floods come down more suddenly than formerly, as the surrounding country is becoming better cleared up and drained. The old stationary bridge across Sulphur Creek was removed and new piles driven and a new bridge built, 207 feet long by 16 feet wide, sheeted on the sides to keep the planks covered with snow during the winter, and painted three coats. The approaches were thoroughly repaired and planked up on outside and otherwise protected with stone facing to prevent wash from waste weirs.

*Dunnville Guard Lock.*

The old timbers and planks were taken off down to the stone work, and new timber coping and bed timbers put in, and covered with 2 inch oak plank. Piles were driven at head and foot of lock, backed with timber and filled in with stone to protect the retaining walls. Bridges worn out and defective planks were removed and re-placed, swing bridges were raised on their pivots and properly balanced, and rods tightened.

*Dunnville Embankment and Dam.*

A leak at south end of toll bridge, and one at Scott's Factory were stopped by sheet piling and puddling. The plank walk and roadway across the embankment were kept in good repair; 100 yards of gravel was placed on each side of Fish Pass, to prevent wash during high water. The lockmaster's house at Port Maitland was rebuilt. The lot was also fenced; a new verandah has been also built in front of toll-keeper's house, Dunnville, and the lot fenced.

Large quantities of sunken logs and rubbish have been removed from bottom of feeder. The water in the feeder has been kept during the winter at a uniform level of 7 feet above Lake Erie level. The entrance to Dunnville Guard Lock and Port Maitland Lock were cleaned out; large quantities of driftwood, logs, stumps and rubbish have been removed from entrances to waste weirs and dam.

The towpath and other banks have been kept in good repair, and faced with stone and gravel to prevent wash.

Canada thistles and obnoxious weeds have been cut on both sides of feeder, also on all Government lands in connection with canal. The well holes of all the culverts have been cleaned out, and the rubbish burnt. Some stationary bridges have been coated over with paint and oil.

Breakwater at Port Maitland was rebuilt by R. F. Lattimore last season.

WILLIAM ELLIS,  
*Superintendent.*

**A.—STATEMENT of Fines and Damages collected from Vessels and Locktenders contravening Canal Regulations, for the fiscal year ending 30th June, 1883.**

Date.	Name of Vessel.	Fines.	Damages.	Total.
		\$ cts.	\$ cts.	\$ cts.
1882.				
July 1...	Tug "Gordon".....	5 00		
do 1...	do "Bennett".....	5 00		
do 1...	do "O. J. Munroe".....	10 00		
do 1...	do "Aikins".....	10 00		
do 10...	do "do".....	10 00		
do 15...	Schooner "Paragon".....		20 00	
do 15...	Barge "Niagara".....		40 00	
do 29...	Tug "Bennett".....	20 00		
do 29...	do "Armstrong".....	20 00		
Aug. 1...	do "Douglass".....	20 00		
do 1...	do "Hector".....	20 00		
do 19...	Propellor "Lake Ontario".....		26 50	
do 23...	Schooner "M. C. Cameron".....		25 00	
do 26...	do "Anglo Saxon".....		22 00	
do 29...	Tug "Armstrong".....	100 00		
Sept. 9...	Schooner "Pride of America".....	20 00		
do 10...	Barge "Lincoln".....		60 00	
do 18...	do "Glenora".....		20 00	
do 18...	do "Gaskin".....		15 00	
Oct. 9...	Tug "Neelon".....		50 62	
Nov. 14...	do "Golden City".....		100 00	
do 14...	do "Robert Hardy".....	5 00		
do 14...	do "Wm. H. Kerrigan".....	10 00		
do 14...	do "Wm. Care".....	10 00		
1883.				
May 18...	Schooner "Kate Eccles".....		50 00	
do 21...	do "O. M. Bond".....		21 00	
do 21...	Barge "Enterprise".....		256 00	
		265 00	706 12	971 12

\*Handed to H. H. Collier, Esq., Collector at St. Catharines.

**B.—STATEMENT showing the depth of Water on the Lower Sill of Lock No. 1, Welland Canal, Port Dalhousie, for Fiscal Year ended 30th June, 1883.**

Months.	Lower Sill.		Months.	Lower Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1882.	Ft. In.	Ft. In.	1883.	Ft. In.	Ft. In.
July.....	14 8	13 10	January.....	12 6	11 8
August.....	14 4	13 9	February.....	12 4	11 10
September.....	14 1	13 3	March.....	13 8	12 0
October.....	13 8	12 5	April.....	13 4	12 2
November.....	12 11	12 3	May.....	14 2	13 2
December.....	12 7	12 2	June.....	14 8	14 0

Average, 1882..... Ft. In. 14 2  
do 1883..... 14 3

STATEMENT showing the depth of Water on the Upper Sill of Lock No. 27, Welland Canal, Port Colbourne, for the Fiscal Year ended 30th June, 1883.

Months.	Upper Sill.		Months.	Upper Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1882.	Ft. In.	Ft. In.	1883.	Ft. In.	Ft. In.
July .....	14 2	12 11	January .....	13 4	11 5
August .....	13 10	12 9	February .....	13 10	11 7
September .....	14 4	11 10	March .....	12 9	13 3
October .....	13 3	12 2	April .....	13 0	11 4
November .....	14 3	11 2	May .....	13 4	11 0
December .....	15 1	11 7	June .....	15 5	12 11

	Ft. In.
Average, 1882.....	13 7
do 1883.....	13 5

Your obedient servant,

(Signed) WILLIAM ELLIS,  
*Superintendent.*

### BURLINGTON BAY CANAL.

#### No. 6.

UPERINTENDENT'S OFFICE,  
ST. CATHARINES, 17th September, 1883.

SIR,—I have the honor to submit my Report on the working and condition of the Burlington Bay Canal for the year ending 30th June, 1883.

The canal was closed on the 11th December, and opened May 5th. No interruptions to the passage of vessels has occurred during the year.

The rebuilding of the piers is now completed, and some changes and improvements in the ferry landings, now under way, will end expenditure for superstructure on this canal, probably for some years; some dredging, however, should be done, as there is not 8 feet of water in some places. I am having soundings taken throughout and will in a few days submit a plan showing the present condition of the channel, and what should in my opinion be done, to meet the cost of which an unexpended balance of about \$5,000 will be available.

Your obedient servant,

WILLIAM ELLIS,  
*Superintendent.*

A. P. BRADLEY, Esq., Secretary,  
Department Railways and Canals,  
Ottawa.

### RIDEAU CANAL.

#### No. 7.

RIDEAU CANAL OFFICE,  
OTTAWA, 13th September, 1883.

SIR,—I have the honor to submit the annual Report on the state of the works under my charge for the fiscal year ending 30th June, 1883.

Navigation closed at Ottawa and Kingston Mills on November 27th and 30th, 1882, respectively, and opened on May 3rd and May 7th, 1883.

Until the close of navigation 1882, the water in the several ascending and descending reaches was well maintained, the "Long Reach" (twenty-one miles) between Burritt's and Long Island being the only one complained of—it fell below navigation height after October 14th.

There were two delays to navigation. On August 8th the steamer "Nile" owned by Mr. Rathbun & Co., ran into the lower lock at Black Rapids, wrecking one side of the gates. The cause of the accident was clearly traced to the signal bell not working. The gates had served their life, and would have had to be renewed the next winter; the delay of a week to passing boats was the most serious effect of the accident.

On October 23rd, a break in the canal bank occurred between the Hog's Back and Hartwell's, which delayed navigation for about ten days.

The cause of the wash out was the caving in of an old log culvert which had been buried in the bank since the first construction of the canal, and the existence of which no one was aware of.

The season of 1883 opened with unusually high water all along the line of the canal, which was increased by continuous heavy rains well on to June, taxing our waste weirs to their fullest capacity to keep the water from overflowing the works.

Considerable damage was done to the long embankments at Kingston Mills and the Narrows by the storm of May the 20th which lasted for three days.

The high water with wind combined made several ugly breaches which had to be promptly repaired.

Some 500 yards of stone will be required to be placed this winter on the banks as a reserve.

At the Whitefish the dam owing to the water raising above the crest level was for several hours in great danger of being carried away, the prompt action of the Lockmaster in obtaining the use of some teams alone saved it.

A good many complaints were made about the height of the water this spring causing the low lands adjoining the canal to be flooded; allowances will have to be made for such an exceptional amount of rain; our waste weirs were all open to their fullest capacity, and were kept so until the water fell to the ordinary spring height.

At Jones' Falls a new swing bridge over the locks and a fixed bridge over the arm of water from the locks to the main land were built during the past winter, these will be a great benefit to the inhabitants living on the west side of the Rideau waters.

At Manotick new bulk heads were built across the main channel leading to the locks, as well as the channel leading to the mills at Manotick; this will now give us a chance to keep our bulk heads tight and to prevent the leakage complained of.

At Ottawa a much needed improvement was made between the Dufferin and Sappers' Bridge, by raising the canal walls, grading and terracing the ground on either side of the canal.

The survey for the Tay Canal was completed; tenders for the work were duly sought by advertisement this spring, and it was subsequently let to Messrs. Manning & Co., who have made a commencement near Beveridge's Bay.

The principal repairs to the works were as follows:—

#### *Kingston Mills.*

Kingston Road Bridge replanked. New stop logs and sluices repaired.

#### *Brewer's Lower Mills.*

Swing bridge replanked.

#### *Brewer's Upper Mills.*

New beams on upper gates and swing bridge repaired.

*Jones Falls.*

Two pairs of lock gates repaired.

*Chaffey's.*

One pier of new gates complete.

*Newboro.*

Lockmaster's house repaired; repairs to lock gates.

*Old Slys.*

Two new sluice frames; new mitre post on middle gates, and repairs to sill of lock.

*Merrickville.*

One pair of lock gates renewed; four glancing piers on basin walls.

*Burritt's Rapids.*

One pair of lock gates renewed; swing bridge repaired, and two new sluice frames.

*Manotick.*

Renewed swing bridge across canal; repairs to piers above bulkhead.

*Black Rapids.*

Renewed one pair of lock gates; stone wing wall of by-wash taken down and re-built; new store house built.

*Hogsback.*

Repaired settlements in dam, and built new store house; break in bank repaired.

*Hartwell's.*

Repaired wing wall of lock, and made good the bank washed out by the leakage.

*Ottawa.*

One pair of lock gates repaired; renewed man hole gratings and chain blocks; renewed planking on wharves round the basin.

The works at the different stations are all in good working order, with the exception of the Narrows Lock, which will require heavy repairs to the masonry as soon as the period of low water again occurs. Preparations for these repairs will require now to be made.

Your obedient servant,

FREDERICK A. WISE,  
*Superintending Engineer.*

A. P. BRADLEY, Esq.,  
Secretary Department Railways and Canals,  
Ottawa.

## No. 8.

## TRENT CANAL.

PETERBOROUGH, 6th October, 1883.

SIR,—In accordance with the regulations established by Act of Parliament, I have the honor of presenting to you my Annual Report on the canal works under my charge for the fiscal year ended the 30th June, 1883.

On 1st July the waters on the several reaches stood at a good summer level, the gauge registering over 7 feet on mitre sills of locks; from that date to 6th November when it reached its lowest point, it fell 2·4 feet. Navigation closed 29th November, and opened 28th April.

On 9th April the water commenced to rise with unusual rapidity, and attained on the several reaches a higher level than has ever been known by the oldest inhabitants of the district, excepting in the spring of 1870. This heavy freshet I anticipated, and made preparations for by running off the large lake, in the winter months, and opening out every possible water way, until the water subsided and resumed its ordinary spring level.

The works received no injury beyond that caused by an ordinary freshet.

The greatest number of lockages made at any single lock during the season, was 1,380, comprising steamboats, 500; barges, 880.

The following is a statement of the repairs executed during the past year, together with those required during the ensuing year.

*Fenelon Falls.*

The works at this station consist of a dam, slide and booms. The slide and booms are under the charge of the Department of Public Works, and received general repairs during the past year, consisting in the renewal of the river wall of the slide and the supplying of cross timbers where required. At this station the works for connecting the waters of Sturgeon Lake with Cameron's Lake, consisting of two lift locks and a short cut through limestone rock, making them available for the navigation of vessels drawing 5 feet of water, such works forming a portion of the proposed extension of the "Trent Valley Navigation" are in course of construction, and will, it is anticipated, be completed next year.

*Lindsay.*

The question regarding the ownership of part of the lot adjoining the lock, the whole of which contains about one-half acre, should be definitely settled as soon as possible. The claimant has, I am informed, sold the portion adjoining King Street, which makes a settlement of the question the more urgent. The Government of the Province have applied for the entire lot, but it would be advisable, for reasons already stated in my detailed report thereon, dated 12th March last, for the Federal Government not to dispose of it at present.

On the stretch between this and Port Perry, at the head of Lake Scugog, a great difficulty occurs in maintaining the water at the standard navigable height during the autumn months; the only way in which this can reasonably be accomplished, is by placing bracket boards on the dam at Lindsay. The objection to this is the alleged damage which would be caused to some low swampy lands on the Scugog River; but this is a question which has not yet been satisfactorily solved, and it is not improbable that the water can legally be maintained at the standard height, fixed upon when the works were first constructed and all parties compensated for damages sustained. The mills when first constructed used very little water in proportion to what they do now, their capacity has been largely increased, and consequently the level of the water on the upper reach has been drawn down more rapidly

than in former years; also, the lockages in former years were trifling compared to what they are at present.

The dam and certain hydraulic privileges at this station were transferred by Order in Council in 1875 to the Ontario Government, but whether the transfer was ever completed I am not informed.

#### *Boycaygeon.*

The upper dam is in a bad state of repair, and it is only by the greatest care and attention that it is kept from being carried away. During the spring it was the cause of great anxiety, and its giving out was daily expected by the inhabitants, every possible precaution was, however, taken to ensure its safety. It is absolutely necessary to construct an entirely new dam on a different location, the cost would be very much less than that of the existing dam. The dam received some new braces and sills, and several hundred yards of gravel. On examining it closely it was found that all the tenons of the trusses were completely rotted out and it would be a useless expenditure to make any extensive repairs.

The lower dam is in a fair state of repair and received no damage from the freshet, but a drive of logs breaking loose at the head of the channel came down against it with such force as to injure about 40 feet of the eastern portion, knocking out the masonry pier at the head of the canal, this was repaired and made good.

The extreme height of the freshet washed away a portion of the berms of the canal and for a few days great anxiety was felt regarding its safety. A large gang of men with teams was set to work and repaired the breach, but in a few days a second wash out occurred which was also promptly attended to, and the mended portion continues to hold good, but it is necessary to raise it about a foot throughout its entire length and to fill in behind it for at least 15 feet.

The lock bottom leaks so as to make the gates extremely hard to work, it is the intention to have it replanked this year. The new upper gates are stepped and work as well as can be expected. New lower ones will be supplied this year.

The tail bay of lock requires to be extended at least 20 feet, and a line of crib work about 60 feet in length constructed at north side of approach thereto to protect vessels from grinding on that shore.

Boatmen complain of the loss they incur by the barges running ashore in the canal in consequence of the sharp bend that occurs near the entrance, and also of the danger and difficulty in approaching the canal with a tow. The entrance being so close to the dam, sometimes the barges are carried upon it and run a great risk in high water of being carried over. To remedy this difficulty it would be necessary to straighten up the canal by cutting off the bend, this would be a great benefit to the navigation and would give a more direct and deeper channel.

#### *Buckhorn.*

The works here for the descent of timber are under the control of the Department of Public Works. The dam, which is under the management of this Department, has been renewed and is in a good state of repair. The works under contract at this station for the extension of navigation are progressing favourably, and will, it is expected, be completed next year. Previous to their completion and before vessels can make use of the improvements it will be necessary to construct works altogether independent of the present contract for the protection of navigation from the drive.

#### *Young's Point.*

The dam and slide having been assumed by Government in connection with the proposed improvements and extension of this navigation system, the former comes under the charge of this Department, but the slide, booms, &c., connected with the descent of timber comes, I presume, under the control of the Department of Public Works. The dam is in a bad state of repair and leaks excessively. It would be more

economical to construct an entirely new dam at this station than to attempt to repair or patch up the present one. Should a new dam be constructed I would strongly recommend that the slide therein should not be more than 20 feet wide, with not more than 2 feet draught, so as to prevent the waste of an unnecessary volume of water when logs are running, which now occurs with the 33 feet slide all along the line of waters. I would also strongly recommend that not more than one deep sluice of the same breadth as the slide be allowed in the dam, as I find from experience that too many sluices, especially when unequally opened, have undermining effects on the adjoining cribs, particularly in a gravel bottom.

A great difficulty to navigation presents itself here, owing to the channel becoming every season blocked with the "drive." When connection is made with the upper waters there is no doubt but that the navigation will be of much greater extent, and consequently it becomes necessary to devise some means to obviate this difficulty. I shall repeat here what I have already stated in my Report to the Department of Public Works on the subject.

"The most feasible plan that presents itself is as follows:—A short distance above the dam a channel exists between an island and the east or Dummer shore, about 50 feet wide. At low water this passage is nearly dry; but by excavating it to a depth of say three feet, with the addition of two small piers and a guide boom at the head, it would make a complete and separate channel for timber. The excavation would be in gravel. The channel at present for both timber and steamboats is on the west side of the island between it and the 'Smith' shore, and the timber is constantly blocking the channel. By clearing this Dummer channel and compelling the lumbermen to use it, would, I am of opinion, solve the difficulty. I tested the question this spring when there was about three feet of water in the passage, by compelling a 'drive' of Messrs. Rathbun's to use it, and the foreman in charge expressed himself as preferring it by 'long chalks' to the other channel."

#### *Lakefield.*

As far back as the year 1874 the subject of the advisability of the Government assuming possession of this dam was brought up, and being referred to me for report, I had the honor in March, 1874, of advising that the control of a dam that maintains navigation should not be held by private parties. Further negotiations were deferred until a few years back, and it is now a matter of congratulation that negotiations again set on foot have resulted in the Government assuming control of the dam in the interests of navigation. A new dam is required, the present one being so old and leaky as to make it almost impossible to retain the water on the reach above at the required navigable height.

Between this Station and Young's Point, there is a constant conflict between the interests of navigation and those of the lumber trade, caused by the blocking up of the steamboat channel by the "drive." This has become a public nuisance, and passenger boats and tows have frequently been delayed for over forty-eight hours at a time. I have represented this matter also in my report to the Department of Public Works, and pointed out how the difficulty could be removed by the construction of certain piers and booms at the points needed, viz: The Three Islands and Henderson's Narrows.

There are also a number of boulders that require removal, and a channel should be cut through a bar that exists a short distance below Young's Point.

If a small dredge suitable to these waters were built and retained on this stretch of navigation, especially now when these new works are progressing it would be of great usefulness, and would save expenditure.

#### *Peterborough.*

The Ontario and Quebec Railway Company having obtained power to construct under certain conditions a bridge across the Otonabee River at this town without a

swing, thus rendering necessary the removal of the steamboat landing further from the town, have in accordance with one of the conditions of the agreement submitted to this office for approval a plan of the wharf they propose building, and I beg to state that its details are in every respect of a substantial character and superior to those of the present one. The location proposed, however, I cannot agree to, as at low water, there will not be a sufficient depth for steamboats to go along side, the quay must run out into the river until the required depth is obtained. The dredging operations for which an amount was voted at last session of Parliament are being carried out under the direction of the Department of Public Works, but I beg to state that these operations will prove futile, unless the sawdust nuisance is put a stop to.

#### *Whitlows Rapids.*

The lock walls were pointed up with English Portland cement, and the gate platforms rebuilt; the gearing for working the gates being out of repair, was refixed.

The cap of the cross dam was sprung up by the high water, and also the flooring of the waste weir, these will be fixed at low water.

The portion of the wing dam adjoining the lock, about 50 feet in length, was swept away during the spring. It is in course of repair.

When constructing the lock at this station the lower mitre sill was not sunk sufficiently to give the required depth of water; when there is 5 feet 6 inches on the sills of the other locks we can scarcely get 4 feet 6 inches on this. It will therefore be necessary to sink this sill about a foot to obtain the depth the navigation demands.

#### *Hastings.*

A large floating bog, having an area exceeding four acres and about 4 feet deep was brought down by the spring flood from Rice Lake and lodged against the works, breaking the booms and damaging the slide, filling up the approach to the lock, and lodging on the dam. It was a source of great annoyance and trouble, and took nearly two weeks to get rid of. This was affected by cutting it into small areas and locking it through. The consequence was that the lock chamber became choked with the debris, and it was necessary to use a diver to clean it. The slide and booms were repaired under the Department of Public Works. The guard and "laying to" wharf above the lock is undergoing renewal under this Department. Applications for water power have been made at this station during the past year, one on the north side, adjoining the lock, and the other on the south side, below Powld Bros.' saw-mill; these I have reported on in detail.

The lock walls require pointing up and the gates need four new top courses. The approach to the swing in the railway bridge across the river has been completed by the company.

#### *Heely's Falls.*

The slide and booms were repaired under the direction of the Department of Public Works.

The dam was injured by the freshet, about 60 feet being carried away. It will be necessary to repair it this fall.

#### *Middle Falls.*

The works here, being erected exclusively for the benefit of the lumber trade, are under the management of the Department of Public Works, and instructions have been given to have the repairs required carried out.

#### *Chisholm's Rapids.*

The dam is undergoing repairs, which consist in supplying new posts and braces where required.

The sluices are being renewed. The lock chamber, for which authority has been granted, will be cleaned out and the new lower gates stepped.

The slide and booms being under the management of the Department of Public Works, instructions have been given by that Department to have the required repairs thereto carried out this fall.

The Central Ontario Railway Company have completed the bridge across the river and erected a temporary structure across the canal.

The works on the River Trent erected for the descent of timber, which were managed some years ago by a Committee have been again assumed by Government, the Committee failing to comply with the terms of the transfer.

I have the honor to be, Sir,

Your obedient servant,

THOMAS D. BELCHER,

*Superintending Engineer.*

A. P. BRADLEY, Esq.

Secretary, Department of Railways and Canals,  
Ottawa.

### No. 9.

#### ST. PETER'S CANAL.

OTTAWA, 24th October, 1883.

SIR,—Navigation through the St. Peter's Canal was closed on the 1st January, 1883, and opened on the 16th April, 1883.

The following is a statement of the traffic through this canal during the fiscal year ended 30th June, 1883 :—

Month.	No. of Vessels bound North.	Tonnage.	Amount collected for Tolls.	No. of Vessels bound South.	Tonnage.	Amount collected for Tolls.
1882.			\$ cts.			\$ cts.
July.....	72	4,236	86 00	59	2,343	61 33
August.....	61	3,762	65 11	42	1,923	45 18
September.....	84	4,362	87 62	53	3,249	52 12
October.....	69	2,984	54 61	87	5,023	98 21
November.....	83	3,064	70 40	73	3,818	82 31
December.....	32	1,243	32 05	17	856	13 05
1883.						
April.....	14	823	17 14	6	350	5 12
May.....	71	2,408	70 10	52	4,243	90 10
June.....	118	8,261	162 43	90	9,121	212 21
Totals.....	604	31,143	645 26	479	30,886	659 63

I have to report that the canal has been in good working order during the year, and that only some small repairs were required and made to the lock gates and roadway.

An appropriation has been made for protection works at the northern or Bras d'Or end of the canal, which will be proceeded with during the present fiscal year.

I have the honor to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

*Engineer in charge.*

A. P. BRADLEY, Esq.,

Secretary, Department of Railways and Canals,  
Ottawa.

## No 10.

CORNWALL 31st October, 1883.

A. P. BRADLEY, Esq.,  
Secretary Department of Railways and Canals,  
Ottawa.

SIR,—I have the honor to submit my Annual Report for the fiscal year 1882-83.

The works under my charge comprise the Murray Canal, the Galops Rapid Improvements, and the enlargement of the Cornwall Canal, &c., on the upper St. Lawrence, also the surveys for the proposed Trent Valley Canal, and the following works of construction authorized and in progress on the Back Lake Division thereof, viz : the Young's Point Dam, and the Burleigh, Buckhorn, and Fenelon Falls Canals.

## UPPER ST. LAWRENCE.

*Murray Canal.*

The construction of this canal, the importance of which to the carrying trade of the Dominion cannot be over-estimated, implies the extension westward through Lake Ontario of the Upper St. Lawrence River navigation by way of the land locked waters of the Bay of Quinté to Presqu'Isle Harbour, a point on the north shore of the lake nearly equi-distant from Kingston and Toronto.

Presqu'Isle, the future Harbour of Refuge of Lake Ontario, is situated midway of the lake, and above the dangerous coast of the Prince Edward peninsula.

From Presqu'Isle to the entrance of the Welland Canal at Port Dalhousie, the actual distance will be less than 120 miles, thus reducing the extent of open lake navigation nearly one-half.

The canal when completed will have the effect of developing a considerable coasting trade along the north shore of Lake Ontario.

The contract was entered into with Messrs. J. D. Silcox & Co., 24th August, 1882, to be completed 1st July, 1885.

The works which extend over a distance of about nine and a-half miles, consist of a through cutting in ordinary excavation four and one-eighth miles in length across the Isthmus of Murray, and of stretches of sub-marine excavation in sand or clay, &c., at the Presqu'Isle and Bay of Quinté entrances and the new entrance to Presqu'Isle Harbour.

Work was commenced on the isthmus near the Presqu'Isle end on September 1st, and dredging operations, Presqu'Isle entrance, October 3rd, 1882; and during the present season a commencement has also been made at the Bay of Quinté entrance.

The whole of the lands required for canal purposes have been expropriated; and the chopping and clearing throughout is now completed.

Excavation has been carried on over the entire length across the isthmus: and in reference thereto it is stated by the contractors, 30th June, 1883, that "the excavation, &c., is going on with good success, nothing appearing as yet, indicating any change in the character of the material different than was represented."

The contractors have made very satisfactory progress since the commencement of the work, and have displayed great skill and energy in its conduct, notwithstanding many difficulties incident to the present high stage of water in the lake.

*Galops Rapid Improvements.*

This work, about three quarters of a mile in extent, is situated near the head of the Galops Canal, seven miles below Prescott, and was designed in connection with the enlargement of the St. Lawrence Canals, to facilitate the descent of deeply laden vessels by the main channel of the river to the head of the Cornwall Canal, at which point the Long Sault Rapid obstructs further progress down stream.

To render the navigation of the "Galops" practicable in all stages of water, several rocky shoals which now exist therein are required to be removed, and the bed of the river depressed, in order that a depth of at least sixteen feet at low water may be obtained, *vide* Report 1881-82.

When these improvements are effected—and it having been ascertained that the rapids below have a sufficient depth for the proposed enlarged scale of navigation—all downward bound vessels will be enabled to use the new channel and the river, and thus avoid the passage through the Williamsburg Canals and the delay occasioned thereby.

Of the shoals referred to above, the most extensive and difficult of removal are the "Island Shoal" and "Lower Bar."

Thus far operations have been confined to Island Shoal, the work on which was commenced late in 1880, and has been continued each subsequent season with increasing success, as well in the management of the drilling and the blasting, as of the dredging plant and machinery.

The working season usually lasts from April to November, about seven months.

Island Shoal, it may now be said, is practically removed, the drilling and blasting having been completed and dredging well advanced.

The work of drilling and blasting at the head of Lower Bar has been successfully commenced.

#### *Cornwall Canal.*

Section number one of the enlargement, the new low entrance is, completed and in general use.

#### *Trent Valley Canal.*

*Surveys.*—The location surveys for this work, which were commenced in August, 1882, are now substantially completed, and the maps, plans and estimates are being prepared as rapidly as possible.

As indicated in a previous report, the main line of water communication, as recommended by Mr. N. H. Baird, in 1833-35, is that which has been generally adhered to; substituting, however, in certain cases, inland routes or cut-offs, which, upon examination, were found to possess advantages over the original project, wherein the canalization of the rivers formed an important feature.

#### *Trent Navigation.*

The works authorized, or now under construction, are necessary to complete and render continuous the several isolated stretches of navigable water, designated the "Back Lake Division," which extends from the village of Lakeland to Balsam Lake, the summit level on the main line of the proposed Trent Valley Canal, and are referred to in ascending order as under.

1. *Lakeland Dam*, which forms a part of the Strickland mill property—the dam proper was expropriated for navigation purposes in October, 1882—although constructed for milling purposes only, has hitherto served to maintain the navigation on Katchiwannoe Lake to the lock at Young's Point.

Its present condition, however, owing to the serious damage which it sustained this season, during the freshet, is considered dangerous, and it should at once be replaced by a permanent regulating dam, upon a site immediately below the present structure.

2. *Young's Point Dam.*—The present dams, situated between Katchiwannoe and Clear Lakes, was built by private enterprise, and subsequently—about 1874—assumed by the Provincial Government, by which it was repaired in the interests of navigation and in connection with the lock. It has, however, from neglect and decay, become unsafe, and authority has accordingly been obtained—February, 1883—to construct a new regulating dam, adapted to the requirements of the Trent navigation, in maintaining and controlling the levels of Clear and Stony Lakes.

A small expenditure was made last April for the purpose of strengthening the present dam, in anticipation of the freshet.

All damages which may be caused by overflow to the lands bordering upon Katchiwannee Lake, including Young's Point, have been arranged for with the owners by the Government valuers.

3. *Burleigh Canal*.—This work extends from Stony Lake to Deer Bay, a distance of about two and one-fourth miles, and embraces the Burleigh Chute and rapids, and Lovesick Lake and rapids.

The contract was awarded to Mr. George Goodwin, 27th September, 1882, to be completed 1st July, 1885.

The work consists in the construction of three lift locks, regulating and flat dams, bridge abutments and other works.

The work has not as yet been commenced by the contractor, owing, as he states, to the difficulty in procuring men, and the absence of any settlement in the neighborhood.

4. *Buckhorn Canal*—about one-fourth of a mile in length—is situated at the upper rapids, between Deer Bay and Buckhorn Lake.

This contract was also awarded Mr. George Goodwin, 27th September, 1882, and is to be completed 1st September, 1884.

The work consists in the construction of a lift lock and entrance, and short reach of canal; also the improvements required in the channel of Little Buckhorn Rapids, near the entrance of Deer Bay.

Work was commenced 30th March, 1883, and has since been carried on satisfactorily.

The excavation in granite rock is well advanced, and the lock-pit is nearly ready to receive the foundation.

The contractor has procured a limestone quarry within a mile of the work, and is now engaged in dressing stone for the lock.

5. *Fenelon Falls Canal* is situated at the falls, between Sturgeon and Cameron Lakes, in the Village of Fenelon Falls, and is about one-third of a mile in length.

The contract was awarded to A. F. Manning & Co., 14th October, 1882, to be completed 1st July, 1885.

The work consists in the construction of two lift-locks, with entrance piers, the formation of a short reach of canal, and of an opening and pier in the central span of the Victoria Railway Bridge, &c., &c.

Work was commenced 16th October, 1882, and very satisfactory progress has since been made.

The greater part of the excavation (limestone rock) has been completed.

Masonry has been commenced in the upper lock.

The cribs forming the foundation for the entrance piers have been sunk and the necessary dredging performed.

And timber for lock foundations and superstructure of piers, &c., &c.; also a large quantity of dressed stone for locks from Bobcaygeon quarry, has been delivered on the work.

I have the honour to be, Sir,

Your most obedient servant,

THOMAS S. RUBIDGE,  
*Engineer-in-charge.*

APPENDIX No. 6.

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OTTAWA, 11th August, 1883.

SIR,—I beg to transmit to you herewith a statement of claims referred to and arbitrated upon by the Official Arbitrators in connection with the Department of Railways and Canals, during the fiscal year ended 30th of June last.

I am, Sir,

Your obedient servant,

CHAS. THIBAUT,

*Secretary to Official Arbitrators.*

A. P. BRADLEY, Esq.,

Secretary Department of Railways and Canals.

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STATEMENT of Claims referred to and arbitrated or reported upon by the Official Arbitrators in connection with the Department of Railways and Canals during the Fiscal Year ended 30th June, 1883.

Claimants.	Nature of Claim.	When referred.	To whom referred.	Whether for Award or Report.	Amount claimed.	Amount awarded or recommended.	Date of Award or Report.	Remarks.
		1882.			\$ cts.	\$ cts.		
Mrs. James Isbister....	Old Portage la Prairie line of C.P.R.	Oct. 9...	Full Board...	Report.	Not stated	762 25	Oct. 14, '82.	
Duncan Livingstone....	Land taken for, and damage .....	do 9...	do .....	Award.	335 25	335 25	do ...	
Wm. J. Almon.....	Pembina Branch of the C.P.R.—Land taken for .....	do 9...	do .....	do ...	Not stated	.....	.....	
Chas. M. Almon & W. B. Gravely .....	do .....	do 9...	do .....	do ...	.....	.....	.....	
133 Maxime Boudreault....	I. C. R.—Damage by fire to fruit trees .....	do 9...	One arbitrator.	do ...	1,500 00	200 00	Oct. 14, '82.	
0 Mrs. Robert Ross.....	do Damage for the killing of her husband.....	do 9...	do .....	do ...	Not stated	162 00	July 28, '83.	
John Hune and G. Wright .....	do Damage for two horses killed .....	do 9...	do .....	Report.	6,225 00	6,225 00	do 5, '83.	
Birds Hill Ballast Pit (Bustoned) .....	Pembina Branch of the C.P.R.—Land taken for ballast pit.....	do 9...	do .....	do ...	.....	.....	.....	\$30 to Hune and \$132 to Wright—\$162 in all.
Jas. Taylor and W. McKay Taylor .....	C.P.R.—Lot 65, St. Clements, taken for and given back.....	do 9...	do .....	do ...	19,413 00	100 00	Oct. 11, '82.	
Charles Wilson.....	Old Portage la Prairie line of C.P.R.—Land taken for gravel .....	do 9...	Full Board....	Award.	4,160 79	1,498 00	Apr. 26, '83.	
Wm. Ferguson.....	I. C. R.—Land taken for the Moncton cotton siding.....	do 9...	do .....	do ...	.....	.....	.....	
J. Bte. Lepage.....	do Damage by flooding at Rlmouski .....	do 9...	One arbitrator.	Report.	3,000 00	2,500 00	June 15, '83.	Referred to full Board for award, Feb. 10, 1883.
Stanislas Meunier and Saul Hardy.....	St. Qurs Dam—Damage to land.....	do 11...	Full Board....	do ...	Not stated	800 00	Nov. 28, '82.	
R. A. R. Hubert .....	Lachine Canal—Damage to land through leakage .....	do 16...	One arbitrator.	do ...	.....	.....	.....	
		do 21...	Full Board....	do ...	22,407 33	2,800 00	Dec. 16, '82.	Recommending to buy a strip of land alongside of the Lachine Canal.

Sylvester Weelon. ....	Welland Canal—Damage to propeller "Europe" and counterchain.....	do	24...	Two arbitrators	do	do	Not stated	4 00	Oct. 14, '82.	The amount due was \$1 paid to Fairbanks. Claimant could not be found.
Ant. St. Mars.....	C.P.R., Pembina Br.—Land taken for	do	24...	Full Board....	do	do	do	44 00	Oct. 14, '82.	Claimant having no title.
Richard Terrot.....	do	do	24...	do	do	do	do	Nil.	5 82	Lot not patented yet
Benjamin W. Hughes..	do	do	24...	do	do	do	do	Nil.	1 60	Payable to G. W. Watson, who owns the lot.
P. Ross.....	do	do	24...	do	do	do	do	3 96	do	do
Angus McGregor.....	do	do	24...	do	do	do	do	Nil.	do	do
Wm. M. Mclelland ....	do	do	24...	do	do	do	do	Nil.	do	do
Arch. W. McIntyre....	do	do	24...	do	do	do	do	Nil.	19 46	do
Malcolm Patterson....	do	do	24...	do	do	do	do	86 84	1 80	do
Mrs. Campbell.....	do	do	24...	do	do	do	do	18 19	Oct. 14, '82	Claimant unknown.
Heirs of Mrs. Harriotte	do	do	24...	do	do	do	do	2 00	do	do
Sarah Thomas.....	do	do	24...	do	do	do	do	15 00	do	do
Mrs. Phebe Taylor.....	do	do	24...	do	do	do	do	642 20	do	do
James Smith.....	do	do	24...	do	do	do	do	Nil.	do	do
Philip Harper.....	do	do	24...	do	do	do	do	Nil.	do	do
William McKay.....	C.P.R.—Pembina Branch, Land taken	Oct.	24...	Full Board....	Report..	do	Not stated	23 90	do	do
John Tait (Dr. Schultz)	do	do	24...	do	do	do	do	2,000 00	April 6, '83	Withdrawn & settled with Dr. Schultz.
Archd. Johnson. ....	do	do	24...	do	do	do	do	do	do	do
Maurice H. Bird (Mrs. Sarah Gunn). ....	do	do	24...	do	do	do	do	do	do	do
Albert Todd.....	do	do	24...	do	do	do	do	do	do	do
James Clark, sen.....	do	do	24...	do	do	do	do	do	do	do
James Clark, jun. ....	do	do	24...	do	do	do	do	do	do	do
Robert Cox.....	do	do	24...	do	do	do	do	do	do	do
John D. Robertson....	I.C.R.—St. John, N.B. terminus, Land taken.....	Nov.	22...	One arbitrator	Award.	do	3,500 00	do	do	do
Magloire Danjon.....	I.C.R.—Barn burned by sparks .....	do	27...	do	Report..	do	Not stated	do	do	do
Théodore Pelletier....	do	do	27...	do	do	do	do	do	do	do
Narcisse Pelletier....	do	do	27...	do	do	do	do	do	do	do
Léon Caron.....	do	do	27...	do	do	do	do	do	do	do
Rémi Lambert.....	do	do	27...	do	do	do	do	240 00	do	do
Louis Lambert.....	do	do	27...	do	do	do	do	80 00	do	do
Jonathan V Ripley.....	do	do	27...	do	do	do	do	24 50	do	do
Stewart Copland.....	do	do	27...	do	do	do	do	do	do	do
David Leitch.....	Welland Canal—Injuries received by his son.....	Dec.	23...	Full Board....	Award.	do	Not stated	do	do	do
Patrick Powers. ....	Welland Canal—Damage by the backing of water.....	do	26...	One arbitrator	Report..	do	do	do	do	do
Fabien Rochette .....	I.C.R.—Land taken for the Chaudière Station.....	do	29...	Full Board....	Award.	do	do	1,702 00	August 1883	do

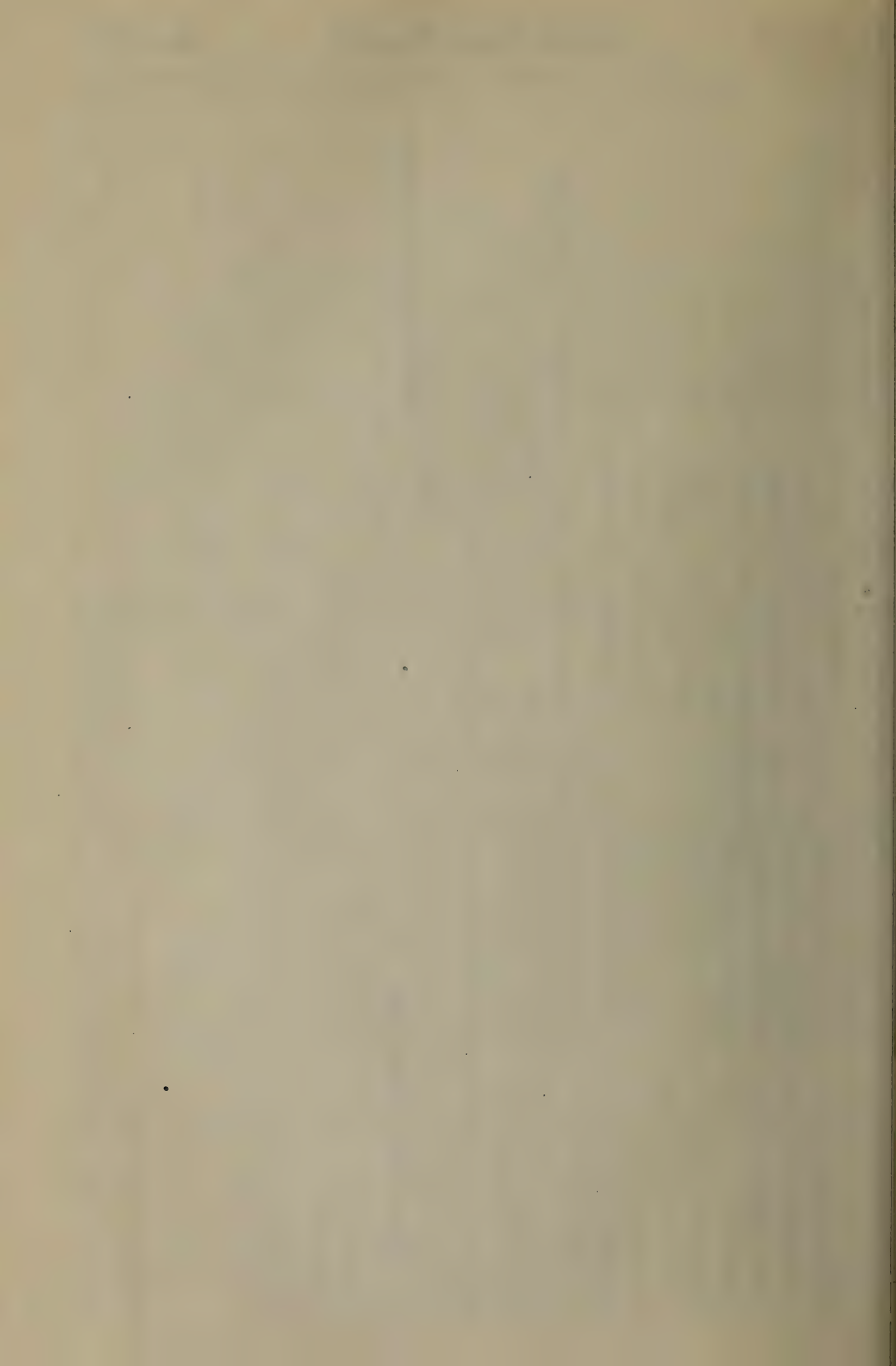
## STATEMENT of Claims referred to and arbitrated or reported upon by the Official Arbitrators, &amp;c.—Continued.

Claimants.	Nature of Claim.	When referred.	To whom referred.	Whether for Award or Report	Amount claimed. \$ cts.	Amount awarded or recommended. \$ cts.	Date of Award or Report.	Remarks.
David Recons.....	do	1883.						
James Jones.....	Damage on account of want of proper works.....	Jan. 5...	One arbitrator	Report..	250 00			
Thos. Hayes.....	Damage to land, diversion of water and land taken.....	do 5...	Full Board.....	Award.	2,800 00	2,600 00	June 27, '83	
Mrs. Dennis Carroll....	Damage for a horse killed by do cow do ..	do 5...	One arbitrator	Report.	45 00			
Allen Price.....	Barn destroyed by fire from. do ..	do 8...	do ..	do ..	40 00	Nil.	July 24, '83	
Mrs. Ann Connell.....	Damage for two horses killed by ..	do 9...	do ..	do ..	100 00			
Jules Larivée.....	Damage through want of a proper drainage.....	do 10...	do ..	do ..	250 00			
Joseph Roy dit Desjardins.....	do	do 11...	do ..	do ..	50 00			
James Falconer.....	do	do 17...	do ..	do ..	5 00			
Cyprien Gagnon.....	Damage to land by flooding from.....	do 25...	do ..	do ..	1,170 00			
J. P. Kelly.....	Damage for a cow killed by. do ..	do 29...	do ..	do ..	30 00			
John Smith.....	Carillon Canal—Damage for a horse drowned in the.....	do 29...	do ..	do ..	150 00			
J. Bte. Plante.....	P. E. I. R'y.—Damages and land taken for.....	do 30...	do ..	Award.	165 00			
Theophile Laraway.....	St. Charles Branch, I. C. R.—Two horses killed by ..	July 1...	do ..	Report..	150 00			
George Kitchen.....	I. C. R.—Damage for a horse killed by ..	July 10...	One arbitrator	Report..	80 00			
R. Carr Harris.....	Ties used for and not paid.. do ..	do 27...	do ..	do ..	700 00			
John McDonald.....	Damage for cattle killed by do ..	Mar. 20...	do ..	do ..	50 00			
G. T. Bowser.....	Land taken for .. do ..	do 31...	do ..	do ..	Not stated			
Nat Fitzsimmons.....	do	April 4...	Full Board.....	Award.	680 00	275 00	June 15....	
Wm. Fraser.....	House and furniture destroyed by fire ..	do 11...	One arbitrator	Report.	Not stated	Nil.	July 9....	
John Gunn.....	Damage to fence and wood by fire from.....	do 25...	Full Board.....	Award.	106 00	106 00	June 15....	
Edward Lefebvre.....	do	do 25...	do ..	do ..	30 00	22 00	do 15....	
	Oulbute Canal—Damage to land and to water privilege by.....	do 27...	do ..	do ..	Not stated	Nil.	April 27....	

John E. Baldwin.....	I. C. R.—Damage by delaying a cargo of potatoes.....	do	27...	do	.....	do	...	488 83	197 00	June 27....
Jean Pierre St. Laurent	do	do	27...	do	One arbitrator	Report.	...	1,500 00	.....	.....
Etienne Grondin.....	do	do	May 14...	do	do	do	...	100 00	.....	.....
Ephrem Foirier.. ..	do	do	do 14...	do	do	do	...	100 00	.....	.....
Octave Gagné .....	do	do	do 14...	do	do	do	...	160 00	.....	.....
Paul Olté .....	do	do	do 14...	do	do	do	...	32 00	.....	.....
George Lavoie.....	do	do	June 1...	do	do	do	...	1,072 50	.....	.....
John Hosehke.....	Welland Canal—Damage to potatoe crop by flooding.....	do	do 5...	do	Full Board.....	Award.	...	577 50	.....	.....
Mrs. Bridget Madden ..	do	do	do 9...	do	One arbitrator	Report.	Not stated	.....	.....	.....
The Anchor Marine Insurance Co.....	do	do	July 5...	do	Full Board.....	Award.	.....	*7,383 12	March 3....	*With interest.
do do ..	do	do	do 5...	do	do	do	...	*12,514 76	do 3....	do
W. McIlhain.....	do	do	do 5...	do	do	do	...	*3,350 00	do 3....	do

CHAS. THIBAUT,  
Secretary to Official Arbitrators.

OTTAWA, 11th August, 1883.



APPENDIX No. 7.

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## GENERAL STATEMENT SHOWING.

- 1st Water Power and other Public Property leased on Canals and Railways, during the Fiscal Year ending 30th June, 1883.
- 2nd. Property purchased by the Department of Railways and Canals, for the Dominion Railways and Canals, and Property sold by the same Department, as not being required for said Railway and Canals during the Fiscal Year ending 30th June, 1883.

## GENERAL STATE

## 1st. Water Power and other Public Property leased on Canals

Date of Signature.	Term of Lease.	Lessees.	Property Leased.	For what purpose used.
<i>Beauharnois Canal.</i>				
Aug. 22, 1882	Dur. pleasure of Government	James Wattie .....	Lot near dam in rear of lot 122, and of McDonald's lot, Valleyfield.	Drying cloth, &c.
Apr. 7, 1883	do ...	Montreal Cotton Co..	Lot 845, above Guard Lock, Valleyfield.	Public park.....
<i>Lachine Canal.</i>				
Oct. 27, 1882	do ...	Acer & Kennedy.....	Lot on S. E. of Mill street, Point St. Charles, Montreal.	Hotel.....
Apr. 23, 1883	do ...	do .....	Part of lot 323, Mill street, Point St. Charles, Montreal.	Cattle and stock yard.
do 4, 1883	21 years (renewable).	Pillow, Hersey & Co.	Recognized by Government as tenants of mill lots 15 and 16.	Spike and nail factory.
<i>Rideau Canal.</i>				
Jan. 4, 1883	21 years (renewable).	London and Canadian Loan and Agency Co. (Lmt'd)	Renewing lease 2792, surplus water, Manotie, Long Island.	Grist mill.....
Apr. 21, 1883	Dur. pleasure of Government	Michael Keily .....	Part of lot E., Concession D, Rideau front, Nepean, head of Deep Cut.	Farming .....
Aug. 13, 1883	do ...	Corporation of City of Ottawa.	Lot at east end of Slater street, Ottawa, west of Canal.	Weigh house.....
do 31, 1883	do ...	Patrick O'Donnell ...	Part of lot E., Concession D., Rideau front, Nepean, at head of Deep Cut.	Farming .....
<i>St. Anne's Lock.</i>				
July 4, 1882	do ...	Canada Mutual Telegraph Co.	To place a pole on canal land for their telegraph.	Telegraph .....
<i>Chambly Canal.</i>				
Sep. 1, 1882	do ...	Montreal, Portland & Boston Railw'y Co. (now called South Eastern Ry. Co.)	Wharf lot at St. Joseph de Chambly, on berm bank or south side of Canal, between bridge No. 7 and lock No. 4, and to lay a railway track in rear of wharf.	Wharf and railway track.
<i>Carillon Canal.</i>				
Dec. 30, 1882	do ...	Henry E. Mason .....	Land between old canal and Ottawa River, from head of old canal, eastward.	Farming .....
do 30, 1882	do ...	John Brophy .....	Land between old canal and Ottawa River, from head of old canal, westward.	do ...
<i>Trent Works.</i>				
do 22, 1882	do ...	Ontario and Quebec Railway Co.	To construct a bridge over Otonabee River, and remove a town wharf to foot of Wolfe street, Peterborough.	Bridge .....

## MENT SHOWING:

and Railways, during the Fiscal Year ended 30th June, 1883.

Amount of Water-power Leased.	Area of Property leased.	Date from which Lease is reckoned.	Annual rental.	Terms of Payment.			Remarks.
				Amount of each instalment.	When payable each Year.	When first instalment was payable.	
			\$ cts.	\$ cts.			
.....	280x100 ft.	July 1, 1882	20 00	20 00	July 1.....	On delivery of lease.	
.....	105,000 sq. ft.	Jan. 1, 1883	20 00	20 00	Jan. 1.....	do ...	
.....	100x225 ft.	Aug 1, 1882	400 00	400 00	Aug. 1.....	do ...	
.....	6 acres ....	Dec. 1, 1882	150 00	150 00	Dec. 1.. .....	do ...	
4 runs... do ...	44 $\frac{1}{2}$ perches do ...	Jan. 1, 1851	430 00 430 00	215 00 215 00	Jan. 1..... } July 1..... }	do ...	In place of Holland & Dunn and T. D. Bigelow & Co.
All the surplus water.	.....	Jan. 1, 1882	50 00	25 00	Jan. 1 & July 1.	July 1, 1882.	Formerly M. K. Dickinson.
.....	5 a., 3 r. & 22 p.	May 1, 1883	13 00	13 00	May 1.....	On delivery of lease.	
.....	.....	do ...	1 00	1 00	do .....	do ...	
.....	2 r., 24 p., 3 a., 3 r. & 5 p.	do ...	9 50	9 50	do .....	do ...	
.....	.....	July 4, 1882	1 00	1 00	Jan. 1. ....	do ...	
.....	356x46 ft. 354x38 ft.	July 1, 1882	60 00	60 00	July 1.....	do ...	This includes wharf lot formerly occupied by Willet & McPherson.
.....	22 $\frac{1}{2}$ acres..	July 1, 1883	10 00	10 00	do ...	July 1, 1882.	
.....	24 $\frac{1}{2}$ acres..	do ...	10 00	10 00	do ...	do ...	
.....	.....	.....	Free.....	.....	.....	.....	

## GENERAL STATEMENT showing: 1st. Water Power and other

Date of Signature.	Term of Lease.	Lessees.	Property Leased.	For what purpose used.
			<i>Cornwall Canal.</i>	
Dec. 28, 1882	21 years (renewable).	Toronto Paper Manufacturing Co.	Surplus water at lock No. 18, at Cornwall.	Paper mill.....
			<i>Welland Canal.</i>	
Oct. 18, 1882	do ...	Whitman & Barnes Manufacturing Co.	Part of lot 14, in 7th Concession, Grantham.	Knife works .....
			<i>Fort Francis Canal.</i>	
Sept. 5, 1882	do ...	S. H. Fowler .....	Assigns to the Rainy Lake Lumber Co. (Limited), his lease of Aug. 1, 1881, of land both sides of canal, at Alberton, &c.	.....

Public Property leased on Canals and Railways, etc.—*Concluded.*

Amount of Water-power Leased.	Area of Property leased.	Date from which Lease is reckoned.	Annual rental.	Terms of Payment.			Remarks.
				Amount of each Instalment.	When Payable each Year.	When first instalment was payable.	
			\$ cts.	\$ cts.			
400 h. p. ....		Jan. 1, 1883	120 00	60 00	Jan. 1 & July 1.	July 1, 1884.	
.....	$\frac{1}{2}$ acre .....	Oct. 1, 1882	75 00	75 00	Oct. 1.....	Oct. 1, 1882.	
.....	.....	.....	.....	.....	.....	.....	

## GENERAL STATEMENT showing: 1st Water Power and other Public Property Leased on Canals and Railways, etc.:—Concluded.

Date of Signature.	Term of Lease.	Lessees.	Property Leased.	For what purpose used.
Aug. 19, 1878.....	do	... Albert Railway Co..	Loan of 302 tons iron rails from I. O. Ry... do ... do 2,246 do 1,395 do 650 do 500 do 420 do 900 do 620	For Branch at Salisbury, N.B. do Hampton, N.B. do Petitcodiac, N.B. For Branch from town of Richibucto, N.B. (formerly Northern Ry. Co.) For their railway.
Sep. 23, 1878....	do	... St. Martin and Up- ham Railway Co.		
Oct. 5, 1878.....	do	... Elgin and Petitco- diac Railway Co.		
Aug. 15, 1879.....	do	... Richibucto Railway Co.		
June 17, 1881.....	do	... Kent Northern Rail- way Co.		
do 24, 1881.....	do	... Albert Railway Co...	do	do
Dec. 6, 1875.....	do	... Chatham Branch Railway Co.....		
Nov. 17, 1882.....	do	... Kent Northern Rail- way Co.....		
			do	from junction of I. C. R. to Chatham, N.B. For their railway.

2nd. PROPERTY purchased by the Department of Railways and Canals, and Property sold by the same Department as not being required for the Railways and Canals, during the fiscal year ending 30th June, 1883.

Date of signature.	Vendors.	Purchasers.	Property Purchased or Sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
<i>Carillon and Grenville Canals.</i>							
Apr. 13, 1883	Hugh Robertson .....	Her Majesty.	Release for damages to mills at Isle aux Chats, Chatham, by feeder .....	Carillon Canal .....	.....	\$ cts.	
Mar. 4, 1882	Reuben Weldon <i>et ux</i> ..	do	Deed of part of lot 13 in 1st range, Chatham .....	Grenville Canal .....	0.952 acres	1,600 00	
Dec. 11, 1882	do	do	Release for damages to lot 7, 1st range, block C, Chatham, by leakage .....	do	.....	9 52	
Feb. 27, 1883	Patrick Farrell .....	do	Release for damages to lot 12, 2nd Con., block A, Chatham, North River water .....	do	.....	400 00	11th Nov., '82, discharge of mortgage by Jos. Greenshields on lot 13.
do	John Veitch .....	do	Release for damages to lot W $\frac{1}{2}$ 16, block A, Chatham, North River water .....	Carillon Canal .....	.....	150 00	
do	John White .....	do	Release for damages to lot 4, 1st Con., block A, Chatham, North River water .....	do	.....	250 00	
Apr. 24, 1883	David Gauthier .....	do	Release for damages to lot W $\frac{1}{2}$ 1, 2nd Con. (official lot 230), Chatham, North River water .....	do	.....	300 00	
Mar. 15, 1883	Jean Morin (or Moran) ..	do	Release for damages to lot 13, 2nd Con., block A, Chatham, North River water .....	do	.....	200 00	
May 1, 1883	John Fitzgerald .....	do	Deed to Govt., part of lots 4, 5, or official lots 187-46 and 187-56, 1st Con., Chatham, North River water .....	do	.....	50 00	
			And release of damages to do do	do	8.00 acres	300 00	
			And with interest .....	do	.....	300 00	
Aug. 22, 1883	Finlay McMartin .....	do	Receipt damages by North River dam, to lots 130, 131, 133 to 137, 159, 66, part 303, 304, 305, St. André .....	do	.....	24 00	
July 23, 188.	do	do	do do do do	do	.....	300 00	From 12th Nov., '81 to 12th Nov., '82.
			do do do do	do	.....	1,200 00	From 12th Nov., '77, to 12th Nov., '81
Oct. 20, 1882	Michael J. Anderson,	do	<i>Cornwall Canal.</i> Deed to Govt. of lot 6, near Town of Cornwall, on Potash Point .....	Cornwall Canal .....	3.07 acres	1,669 88	

2nd. PROPERTY purchased or sold by the Department of Railways and Canals, &c.—*Continued.*

Date of signature.	Vendors.	Purchasers.	Property Purchased or Sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
Nov. 25, 1882	do	Her Majesty	<i>Cornwall Canal—Continued.</i> Order of High Court of Justice, Q. B., to pay do With costs of application..... (Refund balance to Minister R. & C., \$306.42)	Cornwall Canal... do	..... .....	\$ cts. 1,363 46 150 31	
Jan. 19, 1883	William Evans.....	do	<i>Lachine Canal.</i> Release damage to lot 3607, Village St. Augustin, by filling Côte St. Paul drain... do do 3615 do ... do do 3614 do ... do do 3616 do ... do do 1065, St. Ann's Ward, Montreal, and under lease of island above St. Gabriel Lock.....	Lachine Canal..... do do do do do	..... ..... ..... ..... ..... .....	275 00 100 00 100 00 200 00 { 2,280 30 741 00 123 23	
Sept. 26, 1882	Jules Tremblay <i>et ux,</i> <i>et al.</i> .....	do	<i>Ste. Anne Canal.</i> Deed to Govt. of lot 121, official plan, Ste. Anne du Bout de l'Isle.....	Ste. Anne Canal... do	{ Principal... Interest... Rent..... do do	100 00 11 50 12 00 75 00 8 77 3 00 { 150 00 21 75	Cannot be found.
Nov. 25, 1882	J. G. P. Madore <i>et ux,</i> <i>et al.</i> ..... Emm. Pilon.....	do do	do 144 Sentence of Ratification by Superior Court, Montreal, of Govt. title to official lot 143, Ste. Anne du Bout de l'Isle..... Sentence of Ratification by Superior Court, Montreal, of Govt. title to official lots 141 and 142, Ste. Anne du Bout de l'Isle.....	do do do	do do do	174 30	Title being encum- bered.
Jan. 22, 1883	David Madore .....	do		do	.....		

Nov. 26, 1882	J. L. Daoust <i>et al.</i> ....	do	...	Sentence of Ratification by Superior Court, Montreal, of Govt. title to buildings and wharves on official lots 104, 105, 110, Ste Anne .....	do	...	do	...	{ 3,792 00 380 18	Also receipt \$75 interest. 20th March, 1883, notified to re-move houses, &c. O.C. 27th March, 1883, to pay him \$105.48 interest.
Dec. 20, 1882	Delphis Lebeau <i>et ux</i>	do	...	Deed to Govt. of lot 112, official plan, Ste. Anne (except buildings to be removed by him).....	do	...	{ Paid..... do ..... Still due...	...	{ 5,000 00 600 00 2,500 00	
Jan. 22, 1883	J. L. Daoust <i>et al.</i> ....	do	...	Report of collocation and distribution, re works on lots 104, 105, 110, St. Anne .....	do	...	...	...	4,572 18	
June 27, 1883	J. O. Chevreffils, Rev. Geo. L. Cheverfils and A. Decelles....	do	...	Deed to Govt. part lot 105, Ste. Anne, with water power, mill site, dams, excavations, shores, riparian rights, &c., attached to lots 105, 104 and 110.....	do	...	19,053 feet.	...	{ 9,175 00 1,590 27	
Aug. 24, 1883	Estate of Jas. Holden	Her Majesty.	...	<i>Williamsburg Canals.</i> Release in full for storehouse and rent at Morrisburg.....		Rapide Plat Canal .....	...	...	{ 120 00 540 00	Storehouse. Rent.
Sept. 5, 1882	John McDonagh .....	do	...	<i>Welland Canal.</i> Release, damages by flooding lots 49 and 73, Thorold. ....	do	Welland Canal.. {	13.06 acres 1.06 do	...	{ 1,400 00	
Oct. 24, 1882	Hugh A. Rose <i>et ux.</i> .	do	...	Deed to Govt. of parts of lot 27 in 5th Con., Growland, in Town of Welland.....	do	...	{ 0.29 do 0.40 do	...	{ 476 00	
Nov. 22, 1882	Ann E. Donaldson <i>et al.</i> ....	do	...	Release, damages by road closed on lot 10 in 6th Con., Grantham.....	do	...	...	...	450 00	
do 27, 1882	J. P. & T. R. Merritt <i>et ux.</i> .....	do	...	Deed to Govt., part lot 27 in 1st Con., Humberstone, on East street, Port Colborne	do	...	0.90 acres	...	771 00	
Mar. 1, 1883	Mary & Thos. Nixon.	do	...	Release, damages to lot 12 in 8th Con., Grantham .....	do	...	...	...	100 00	
Apr. 11, 1883	Widow and heirs of John Rae. ....	do	...	Deed to Govt., part lot D, on East St., Port Colborne; on lot 27, 1st Con., Humberstone	do	...	0.005 acres	...	675 00	
Mar. 1, 1883	Port Robinson and Thorold Macadam- ized Road Co. ....	do	...	Release, damages to Port Robinson & Thorold Road Co .....	do	...	...	...	150 00	

## 2nd. PROPERTY purchased or sold by the Department of Railways and Canals, &amp;c.—Continued.

Date of signature.	Vendors.	Purchasers.	Property Purchased or Sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
<i>Welland Canal—Continued.</i>							
Apr. 15, 1882	John M. Ellsworth...	do	Deed to Govt., part lot 26 in 3rd Con., Ham-berstone .....	Welland Canal....	1.68 acres	300 00	
July 7, 1883	John Berryman <i>et ux.</i>	do	Deed to Govt., part lot 14 in 6th Con., Grantham, (N.E. part) St. Catharines.....	do .....	1.50 do	1,240 00	
do 7, 1883	do ..	do	Release, water damages to lot 14 in 6th Con., Grantham, (south of N.E. part), St. Catharines.....	do .....	.....		
June 20, 1883	Synod of Diocese of Niagara, or Church of England. ....	do	Deed to Govt., part lot 27 in 5th Con., Crowland, or lot H.A.R., or Holy Trinity Church Parsonage lot. (Raceway for water power) (Blocks G. & L. in Town of Welland.....	do .....	0.19 acres	500 00	
July 9, 1883	Rosanna Lane <i>et vir.</i>	do	Deed to Govt. of Lots 28, 29, 35, 36, in Town of Welland, W. of Catharine St.....	do .....	3.61 do	500 00	
do 31, 83.	1st. Fred. Boyer, A. Boyer <i>et ux.</i> , tenants 2nd. The Security Loan and Savings Co., mortgagees...	do	Release, damages by explosives to lot 1, south of Clarence St., Port Colborne, and to building and contents.....	do .....	0.03 do	100 00	
Mar. 5, 1883	Harmon Root.....	do	Release, damage to personal property at Dunnville, Gore lot A and No. 1, Chesnut St.....	do .....	.....	1,405 00	
<i>Canadian Pacific Railway.</i>							
Aug. 16, 1882	Samuel Sullivan .....	do	Deed to Govt. of N.W. 1/4 sec. 20, Tp. 2 R. 3 E., County of Manchester .....	Pembina Branch..	4.21 acres	5 41	
May 12, 1883	Edwd. Metcalf.....	do	Deed to Govt. of lot 1, block 5, Emerson, County of Manchester .....	do .....	.....	45 30	
June 2, 1883	And. W. Russell.....	do	Deed to Govt. of N.E. 1/4 sec. 32, Tp. 2, R. 3 E., County of Provencer.....	do .....	2.22 acres	328 00	

July 20, 1883	Edwd. L. Drewry. ...	do	... Deed to Govt. of lot 49, St. John, County of Selkirk .....	do	...	...	6 25	
June 21, 1883	Jas. & Wm. McKay Taylor .....	do	... Release of damages by constructing C.P.R. through Town of Selkirk to lots in County of Lisgar:—1st. To part lot 65, St. Clement, 4.50 acres; 2nd. To part lot 65, St. Clement, 8.75 acres; 3rd. To 63 town lots, being parts of 65, St. Clement, viz.: Nos. 1 to 6, 10, 17, 34, 36, 47, 49, 51, 54 to 57, 93, 95, 97, 99, 101, to 121, 140, 142 to 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, .....	do	...	...	{ 1,498 00 39 15 1,246 66	Interest on \$783, from 1st Oct., '82, of damages.
May 1, 1883	F. T. Bradley.....	do	... Deed to Govt. { Lots 24 & N <sup>o</sup> 22, St. Agathe, Co. of Manchester..... Lots 51, 193, 194, 295, 796 (of lot 2), Emerson, Co. of Man- chester.....	do	...	0.34 acres	567 00 0 30 36 40	Interest.
Oct. 4, 1882	Hugh Bannerman....	do	... do lot 86, St Paul, Co. of Selkirk. N.W <sup>1</sup> 4 sec. 5, Tp. 13, R. 5 E, Co. of Lisgar .....	do	...	0.03 acres		
July 23, 1883	Robt. Cox .....	do	... do { Lot 163, St Andrews (off-take drain), Co. of Lisgar... Lot 98, St. Clement, (road bed) Co. of Lisgar.... Lot 167, St. Andrews, (dam- age to mill-dams, &c) Co. of Lisgar.....	do	...	4.07 do	60 92	
Aug. 2, 1883	John Gunn .....	do	... do lots 1 to 10, block 68, Emerson, County of Manchester .....	do	...	6.00 do	590 00	
do 29, 1883	Chas. M. Almon & W. E. Gravely.....	do	... do of the right of way, &c, on Prince Arthur's Landing & Kaministiquia Railroad. ....	do	...	.....	14,000 00	
Oct. 18, 1880	Prince Arthur's Land- ing and Kaministi- quia Railroad Co..	do	... do of the right of way, &c, on Prince Arthur's Landing & Kaministiquia Railroad. ....	do	...	.....	5,040 00	
Aug. 1, 1882	Rev. R. K. Arbuthnot et al, executor of Anne Arbuthnot, daughter of Chas. Fitzgerald, grand- daughter of Hon. Wm. Hazen.....	do	... Receipt for lands at North Slip, St. John, N.B., taken in 1865 for deep-water terminus for European & N. A. Ry.—(without interest, which is reserved)—G. S. Smith, agent's receipt for same, 28th Oct., 1883, &c.....	do	...	.....		
		Her Majesty.	Intercolonial Railway.	Canadian Pacific Railway.....	Deep-water termi- nus, I. C, Ry.....			

## 2nd. PROPERTY purchased or sold by the Department of Railways and Canals, &amp;c.—Continued.

Date of signature.	Vendors.	Purchasers.	Property Purchased or Sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
Mar. 7, 1883	John H. Beatty <i>et al.</i>	do	<i>Intercolonial Railway—Continued.</i>			\$ cts.	
Aug. 15, 1883	John McFadden.....	do	Bond in \$33,000 to pay \$16,500 balance due on price of 10 locomotives sold him.....	Not required for railway .....	.....	16,500 00	Personal injuries.
			Release—judgment recovered by Weathy Ann Hall and W. J. Law, her husband .....	Accident.....	.....	2,659 08	
Feb. 2, 1883	Jane McInnes.....	do	<i>Prince Edward Island Railway.</i>				
			Receipt on account—without prejudice—for accident to and death of her husband on 25th August, 1880 .....	do .....	.....	400 00	
Dec. 20, 1882	R. C. Bishop of Charlottetown.....	do	Deed part lot 45, at Souris, King's County, for railway.....	P. E. I. Railway...	2·10 acres	1,276 30	
			<i>Trent Valley Canal.</i>				
	Poussatie & Roger...	do	Release for overflow, by dams, for Burleigh Canal, to: Lot 40 in 16th Con., Smith .....				
Oct. 5, '82	John E. Rodgers....	do	33 15th do 33 in 17th, 32, 33, 34 in 18th .....				
	F. J. Bell.....	do	37 16th do .....				
	J. S. Bell.....	do	39 16th do .....				
	Thos. Bell.....	do	38 16th do .....				
	John Bell.....	do	36 16th do .....				
	Francis Pierson.....	do	34 16th do .....				
	Wm. Northy.....	do	32 16th do .....				
	W. Blanco (will sign)	do	33 16th do .....				
July 26, 1883	John Carnegie .....	do	Deed of lot 4 in 1st Con., Tp. of Harvey .....	Burleigh Canal..	.....	1 00	To each owner.
					50·00 acres	250 00	

July 28, 1883	A. P. Poussette <i>et ux</i> and M. Roger.....	do ...	do 40 16th do Smith .....	Burleigh Canal.....	9-00 do	200 00	Vendors to keep and maintain fences.
Aug. 1, 1883	Re W. H. Hall.....	do .....	Deposit into Court, re lot 9 in 8th Con., Harvey .....	do .....	3-90 do	3,500 00	
Aug. 13, 1883	James Davis.....	Her Majesty,	Three releases, for damages by raising waters of "Deer Bay," to lots 31, 33, 34 in 18th Con., Smith.....	do .....	.....	105 00	
Aug. 29, 1883	Order in Council.....	do ...	Transferring Island No. 31 from Indian De- partment to this Department.....	Burleigh Canal .....	.....	75 00	
do ...	Jos. McArthur <i>et ux</i> ..	do ...	Deed of south part lot 3, east of May street, Village of Fenelon Falls.....	Fenelon Canal.....	0-06 acres	200 00	Vendors to keep and maintain fences.
Sept. 4, 1883	Anne Holmes <i>et vir</i> ...	do ...	Deed of west part Island 15, or Burleigh Island, Tp. of Smith.....	Burleigh Canal ....	5-00 do	500 00	
Dec. 29, 1883	John McMaster <i>et ux</i> ..	do ...	<i>Murray Canal.</i>			300 00	
do ...	Chas. Clindinnin <i>et ux</i> .....	do ...	Deed of part lot 23, Con. C, Tp. of Brighton, (except road) .....	Murray Canal .....	20-22 do	1,000 00	
do ...	Samuel May <i>et ux</i> .....	do ...	Deed of part lot 22, Con. C, Tp. of Murray.....	do .....	7-58 do	1,000 00	Vendors to keep and maintain fences.
do ...	Joseph Wilson <i>et ux</i> ...	do ...	do 20 do do .....	do .....	0-24 do	20 00	
Jan. 4, 1883	J. C. Rankin (tenant)	do ...	Release, damages to crops on lot 23, Con. C, Tp. of Murray.....	do .....	1-99 do	150 00	
do ...	Jonathan Hutcheson <i>et ux</i> .....	do ...	Deed of part lot 20, Con. C, Tp. of Murray.....	do .....	.....	40 00	
do ...	Wm. Lovett <i>et ux</i> .....	do ...	do 21 do do .....	do .....	6-13 acres	3,000 00	Vendors to keep and maintain fences.
do ...	do .....	do ...	do 18 do do .....	do .....	8-54 do	2,500 00	
Jan. 4, 1883	Esther A. Lee <i>et vir</i> ..	Her Majesty,	Deed of part lot No. 17 Con. C, Tp. of Murray	Murray Canal .....	7-47 do	500 00	
do 18, 1883	C. K. Stoneburgh <i>et ux</i> ..	do ...	do do do do .....	do .....	3-32 acres	125 00	
do 18, 1883	Mary Goldsmith <i>et vir</i>	do ...	do 16 do do .....	do .....	4-82 do	400 00	Vendors to keep and maintain fences.
Feb. 28, 1883	Henry S. Allard .....	do ...	do 17 do do .....	do .....	3-32 do	75 00	
do 17, 1883	Hannah Gould <i>et vir</i> ..	do ...	do 13 do do .....	do .....	0-20 do	10 00	
do 17, 1883	Ph. H. Lawson <i>et ux</i> ..	do ...	do 13 do do .....	do .....	0-02 do	10 00	
do 17, 1883	W. H. Goldsmith <i>et ux</i>	do ...	do 17 do do .....	do .....	2-95 do	250 00	Vendors to keep and maintain fences.
Dec. 29, 1882	Chas. Lee <i>et ux</i> .....	do ...	do 15 do do .....	do .....	3-13 do	250 00	
Feb. 26, 1883	Jos. Pelkey <i>et ux</i> .....	do ...	do 19 do do .....	do .....	7-63 do	600 00	
do 17, 1883	Thos. P. Powers <i>et ux</i> and <i>et al.</i> .....	do ...	do 18 do do .....	do .....	0-54 do	50 00	
Mar. 21, 1883	Wm. H. May <i>et ux</i> .....	do ...	do W½ 17 do do .....	do .....	0-84 do	75 00	Vendors to keep and maintain fences.
Feb. 17, 1883	Peter Gould <i>et ux</i> .....	do ...	do 17 do do .....	do .....	2-97 do	260 00	
Mar. 31, 1883	Saml. F. May .....	do ...	do 14 do do .....	do .....	1-62 do	800 00	
Apr. 14, 1883	Re P. H. Lawson.....	do ...	do 16 do do .....	do .....	4-97 do	210 00	
Mar. 31, 1883	A. W. Talmage <i>et ux</i>	do ...	Deposit into court re 17 .....	do .....	0-41 do	100 00	Vendors to keep and maintain fences.
		do ...	Deed of part lot No. 27 .....	do .....	1-67½ do	3 00	
		do ...				50 00	

## 2nd. PROPERTY purchased or sold by Department of Railways and Canals, &amp;c.—Continued.

Date of signature.	Vendors.	Purchasers.	Property Purchased or Sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
<i>Murray Canal—Concluded.</i>							
Apr. 21, 1883	Thos. A. Porter <i>et ux</i>	do ...	do 6, carrying place block, Township of Murray	Murray Canal.....	0.92 do	75 00	25th May, '83, bond
May 31, 1883	John May <i>et ux</i> .....	do ...	do 14, Con. B do ...	do	6.844 do	385 00	<i>re</i> £75 mortgage, Wm. Ryan to Hon. J. Macaulay
do 31, 1883	H. G. Lawson <i>et ux</i> .	do ...	do N.W. pt. 26, Con. C do Brighton	do	0.097 do	10 00	of 7th May, 1854, (not discharged).
do 31, 1883	Wm. Evans <i>et ux</i> ...	do ...	do 16 B do Murray	do	7.29 do	400 00	
June 16, 1883	<i>Re</i> Widow Sprung ...	do ...	Deposit into court <i>re</i> 15 C do Brighton	do	6.838 do	15 00	
Mar. 21, 1883	Martha Church <i>et vir</i>	do ...	Deed of part lot No. 28 C do Brighton	do	0.556 do	300 00	
June 18, 1883	Louis Latour <i>et ux</i> ....	do ...	do S. E. 13, carrying place block, Township of Murray	do	2.776 do	40 00	
May 31, 1883	School Trustees No. 1, Murray. ....	do ...	do 9 do ...	do	9.218 do	175 00	
Aug. 24, 1883	<i>Re</i> George May.....	do ...	Deposit into court <i>re</i> 15, Con. B do ...	do	2 065 do	500 00	
Sept. 13, 1883	<i>Re</i> L. Latour.....	do ...	do 12, carrying place block, Township of Murray	do	2.258 do	50 00	
June 22, 1883	Ben. Row <i>et ux</i> .....	do ...	Deed of parts lots 7 & 8 do ...	do	17 769 do	180 00	
Aug. 11, 1883	S. H. Flindall <i>et ux</i> .	do ...	do 8 & 9, Con. C do ...	do	2.757 do	5 40	
						112 90	
						3 39	
						1 00	
						120 00	

H. A. FISSIAULT,

OTTAWA, 28th September, 1883.

## APPENDIX No. 8.

## STATEMENT of Contracts entered into between 1st July, 1882, and 30th June, 1883.

Railways and Canals.	No. of C. P. R. Contract.	Deed, Letter or otherwise under which contract was made.	Name of Contractor.	Date of Contract.	General Description.
Canadian Pacific Railway.....	94	do 6,940.....	Horton & Son.....	Sept. 4, 1882	Supply 70 tons bolts and nuts, and 200 tons spikes, delivered f.o.b., ship at London, or at Cardiff or Newport for Canadian Pacific Railway.
do do .....	95	do 6,941.....	Bayliss, Jones & Bayliss.....	Sept. 5, 1882	Supply 40 tons bolts and nuts, and 310 tons spikes, delivered f.o.b., ship at London, or at Cardiff or Newport for Canadian Pacific Railway.
do do .....	96	do 6,938.....	Guest & Co. ...	Aug. 19, 1882	Supply 8,800 tons steel rails and 490 tons fish plates for Canadian Pacific Railway, delivered f.o.b. at wharf at Cardiff, England.
do do .....	97	do 6,929.....	John McDonald.....	Nov. 14, 1882	Construct 6 combined passenger and freight buildings at, viz.: Rossland, Cormac, Summit, Gilbert, Vermillion and Eagle River, on Section B or 42nd contract, Canadian Pacific Railway, between Prince Arthur's Landing and Winnipeg.
do do .....	98	Deed No. 6,924.....	C. N. Black.....	Jan. 19, 1883	Supply 30,000 tamarac ties 8' 7" x 6 in. for Canadian Pacific Railway.
Intercolonial Railway.....		do 6,821.....	Spring Hill Mining Co.....	July 11, 1882	Supply coal for district No. 2, Intercolonial Railway--75,000 tons of 2,240 lbs.
do do .....		do 6,822.....	James Harris & Co.....	July 13, 1882	Construct 5 2nd class passenger cars for Intercolonial Railway.
do do .....		do 6,823.....	Ontario Car Co.....	July 26, 1882	Construct 5 2nd class passenger cars for Intercolonial Railway.
do do .....		do 6,827.....	Kingston Car Co.....	July 21, 1882	Construct 50 gondola cars for Intercolonial Railway.
do do .....		do 6,835.....	James Harris & Co.....	Aug. 12, 1882	do do 75 do
do do .....		do 6,874.....	Kingston Car Co.....	Oct. 16, 1882	Two combined postal and smoking cars for Intercolonial Railway, delivered at Chaudière Junction.
do do .....		do 6,875.....	Carrier, Laine & Co.....	Oct. 27, 1882	75 gondola cars for Intercolonial Railway, delivered at Point Lévis.
do do .....		do 6,904.....	Halifax Co (Limited).....	June 29, 1882	Supply about 25,000 gross tons of round coal for Intercolonial Railway, District No. 1, delivered on cars at Albion Mines siding or at coal drops on tenders.

Railways and Canals.	Deed, Letter or otherwise under which contract was made.	Name of Contractor.	Date of Contract.	General Description.
do	do 6,916.....	James Crossen.....	Feb. 7, 1883	Construct 200 platform cars for Intercolonial Railway, delivered at Chaudière Junction.
do	do 7,004 ....	Guest & Co.....	March 5, 1883	Supply 2,000 tons steel flange rails for Intercolonial Railway; 67 lbs. to the yard with necessary fish plates, bolts and nuts, delivered at railway wharf at Halifax, N.S.
do	do 7,048.....	Barrow Hoematite Steel Co....	April 9, 1883	Supply 300 tons steel flange rails and necessary fish plates, bolts and nuts, delivered for Intercolonial Railway on wharf at Halifax, N.S.
do	do 7,080.....	Charles Powell.....	May 28, 1883	Carriage of freight by packet, between Pointe du Chêne, Shediac and Richibucto, N.B., in conjunction with Intercolonial Railway.
do	do 7,081.....	John Smith & N. McPhail....	do	Carriage of freight by packet between Pointe du Chêne, Shediac and Bouctouche.
do	do 7,082.....	Henry O'Leary.....	May 26, 1883	Carriage of freight by packet between Pointe du Chêne, Shediac and Richibucto.
do	do 7,100.....	Town Council of Dartmouth, N.S.	June 12, 1883	Agree to pay \$4,000 a year, for 20 years to Government, if Intercolonial Railway be extended to a point within 3,750 ft. from west end of Portland Street, in town of Dartmouth, N.S., and equipped and operated.
do	do 7,110.....	West Cumberland Iron Steel Rails Co.	June 22, 1883	Supply 1,200 tons steel flange rails, fish plates, bolts and nuts for Intercolonial Railway.
Prince Edward Island Railway .....	do 29,247 O. O.	Canadian Locomotive Co.....	July 10, 1882	Accepts offer of Company, and extends contract 6,671 for 2 additional locomotives for Prince Edward Island Railway.
do	do 7,044.....	Samuel McAnslin.....	Dec. 1, 1882	Supply 1,000 sleepers for Prince Edward Island Railway, delivered between Ellerslie and Northam.
do	do 7,045.....	James Barclay .....	Nov. 30, 1882	Supply 60,000 sleepers for Prince Edward Island Railway, delivered between Tignish and Summerside.
do	do 7,062.....	Vale Coal, Iron, &c, Manufacturing Co.	June 6, 1883	Supply 3,000 tons of round coal for engines of Prince Edward Island Railway.
do	do 7,063.....	Intercol. Coal Mining Co.....	June 21, 1883	Supply 2,500 tons of round coal for engines of Prince Edward Island Railway.
Welland Canal.....	Deed No. 6,662.....	St. Catharine's and Welland Canal Gas Light Co.....	July 7, 1883	Light with gas the new Welland Canal, from Port Dalhousie to the Guard Lock, at north end of summit level and south of Marlatt's Pond (9 miles)—108 lights in all.



## APPENDIX No 9.

## THE CANADIAN PACIFIC RAILWAY COMPANY.

OFFICE OF THE GENERAL MANAGER,  
MONTREAL, 27th November, 1883.

SIR,—In response to your inquiry of the 17th inst., I have the honour to submit herewith the preliminary report of Mr. A. B. Rogers, Engineer in Chief, in charge of the location of the Mountain Section of the Canadian Pacific Railway, together with a report of Mr. James Ross, Manager of construction of the Western Division.

These reports cover the only section of the line upon the practicability of which any doubts have recently been cast.

Beyond this section to the point of connection with the section under construction by the Government, no engineering difficulties exist; on the contrary, the work is light and may be quickly done.

I am happy to be able to report rapid progress on the Lake Superior Section of the line. Track-laying has been completed eastward from Port Arthur to the Nipigon River, and will be continued to a point thirty-five miles beyond before the close of the season. From that point eastward, for a distance of one hundred miles, is encountered the heaviest rock work on the Lake Superior Section. This is covered by one mile contracts and is heavily manned. Work will be carried on throughout this winter and it is expected that a considerable portion of this section will be ready for the track in the early spring.

The track of the main line extension westward from Lake Nipissing has advanced beyond Sudbury Junction. This section is also heavily manned, and the work will be pushed forward throughout the winter.

I have the honour to be, Sir,

Your obedient servant,

W. C. VAN HORNE,  
*General Manager.*

HON. JAMES H. POPE,  
Acting Minister of Railways and Canals, Ottawa, Ont.

MONTREAL, 20th November, 1883.

DEAR SIR,—The results of the surveys on the Mountain Division made during this year, 1883, are briefly, as follows: A line of definite location from the summit of the Rocky Mountains to the summit of the Selkirks, a distance of  $95\frac{62}{100}$  miles, and a preliminary survey from the summit of the Selkirks to the west crossing of the Columbia (opposite the mouth of the Eagle Pass), a distance of 43 miles. The route adopted proceeds from the summit of the Rockies westerly down the Kicking Horse River,  $44\frac{70}{100}$  miles to the valley of the Columbia, which it follows in a north-westerly direction nearly 30 miles, until it enters the valley of the Beaver, which it follows southerly and westerly for about 20 miles to the summit of the Selkirks. From this latter point it descends westerly down the east fork of the Ille-cillewait, about 20 miles to a junction with the main stream, which it follows south-westerly about 23 miles to the west crossing of the Columbia. A maximum gradient of 116 feet per mile is found necessary in the descent westerly from the summit of the Rockies down the Kicking Horse Pass for a distance of about 17 miles and again for a distance of two miles in the Lower Kicking Horse.

The same gradients are used in the ascent of the Selkirks for about 16 miles and for nearly 20 miles down their west slope. In no instance is this rate of grade exceeded, and a proper compensation for curvature is made in every case by a reduction of the rate of grade.

We have used a maximum rate of curvature of 10 degrees, mainly in the Kicking Horse Valley, but only an occasional use of that rate of curvature in the canôn of the Columbia and in the Selkirks. I am confident, however, that in the final adjustment of the line after the right of way shall have been cleared, a material improvement will be made in this respect.

There will be three crossings of the Kicking Horse in the upper valley and eight in the lower—all of one span, and no span exceeding two hundred feet. The first, or easterly crossing, of the Columbia will require a bridge of 350 feet in length and the west crossing about 800 feet.

The heaviest work to be encountered in construction lies in the upper Kicking Horse, where about six miles may be classified as hard mountain work with about two miles of hard work near the mouth of the Kicking Horse, the remainder averaging from medium to light. For 10 miles near the bend of the Kicking Horse, and 20 miles in the valley of the Columbia, the work will compare favorably with that in the Bow Valley. In the 6 miles of the Columbia canôn the work may be rated as 2 miles hard work and the remainder light. Through the Selkirks the work is more uniformly distributed than through the Rockies and presents no special engineering difficulties, and for mountain work may be considered moderate, the percentage of rock being unusually small.

Estimates for the entire line, in sections of one mile each, accompanying the plans and profiles submitted with this report.

Tunnelling will be required as follows:—

	Lineal feet.
In the Upper Kicking Horse.....	1,800
“ Lower “ .....	1,400
“ Columbia Canôn.....	2,200
“ East slope of Selkirks.....	none
“ West “ “ not to exceed.....	1,200

Making a total of..... 7,600

Longest tunnel 1,400 feet; next in length 1,000 feet; others from 150 to 600 feet in length.

I am glad to state that my expectations of the feasibility of the route adopted have been more than realized by the results of the surveys of this year, and as shewn by the plans and profiles the work is of such nature that any desired force can be used on the construction, and with a certainty of the greatest dispatch in its completion.

The track having reached the summit of the Rockies, there remains a gap of not over 270 miles to be completed between that point and Kamloops.

The elevations above the sea level of some of the prominent points on the line are as follows:—

	Feet.
Summit of the Rockies.....	5,300
Bend of the Kicking Horse .....	3,647
Mouth “ “ (in Columbia Valley).....	2,541
East Crossing of Columbia River (grade).....	2,392
Summit of Selkirks.....	4,316
West Crossing of Columbia (grade).....	1,436

The highest elevation attained is that in the Rockies, 5,300 feet. The highest elevation to be overcome in the Gold Range is the Eagle Pass, which is not more than 400 feet higher than the West Crossing of the Columbia.

Yours truly,

A. B. ROGERS,

*Chief Engineer in charge of Surveys, Mountain Section.*

W. C. VAN HORNE, Esq.,

General Manager Canada Pacific Railway, Montreal, Canada.

MONTREAL, 23rd November, 1883.

DEAR SIR,—Our track will, at the end of this week, reach the summit of the Rocky Mountains, thus fully carrying out this year's programme of work under my superintendence nearly six weeks ahead of the time allowed for it; besides we have some work done on the Western Slope down the Kicking Horse Pass.

At present there are about seven hundred and fifty men employed in the Rocky Mountains, but it is our intention to reduce this force somewhat and confine our operations this winter to making ties and timber, forwarding supplies and completing the final adjustment of the line.

During the year I have been able to personally examine very thoroughly our route through the Rockies to the Columbia, and besides having Major Roger's reports of the work on the Selkirks, I sent Mr. Hogg to examine and report upon it, and am satisfied that we have the most direct practicable line for the Canadian Pacific Railway, with summit elevations lower than on the other Pacific lines.

I desired, however, as I explained to you in a former letter, before commencing construction on the Western Slope of the Rockies to feel perfectly assured that the Kicking Horse line had been thoroughly developed by surveys so as to give us a line with the shortest heavy grade planes, the least amount of curvature, located where it could be maintained after construction, and at the least cost, and I have had other surveys made through the Bow River and Howse Passes to determine whether we could get a line, which though evidently longer than the Kicking Horse, would present such features as would compensate for its increased distance.

As the result of our examinations and surveys, I am glad to say that we can commence our work in the spring feeling quite satisfied that we have secured beyond doubt the best line through the mountains.

The heavy portion of our next season's work will be in the Kicking Horse Valley, but it is placed so that we can distribute a large force upon it. The longest tunnel is 1,400 feet, and we can, if found necessary to expedite the construction, build a temporary line around the heavy work.

Yours faithfully,

JAMES ROSS,

*Manager of Construction.*

W. C. VAN HORNE, Esq.,

General Manager Canada Pacific Railway.

## APPENDIX No. 10.

List of Contracts entered into in connection with the Canadian Pacific Railway.

No. of Contract.	Names of Contractors.	No. of Contract.	Names of Contractors.
1	Sifton, Glass & Co.	49	Richard Dickson
2	Richard Fuller.	50	Miller, Brothers & Mitchell.
3	F. J. Barnard.	51	Dominion Bolt Co.
4	Oliver, Davidson & Co.	52	North-West Transportation Co.
5	Joseph Whitehead.	53	Barrow Hematite Steel Co.
5a	Joseph Whitehead.	54	Guest & Co.
6	Guest & Co.	55	West Cumberland Iron and Steel Co.
7	Ebbw Vale Steel, Iron and Coal Co.	56	The Kellogg Bridge Co.
8	Murray Steel and Iron Co.	57	The Truro Patent Frog Co.
9	West Cumberland Iron and Steel Co.	58	W. Hazelhurst.
10	West Cumberland Iron and Steel Co.	59	Whitehead, Ruttan & Ryan.
11	Naylor, Benson & Co	60	D. O. Mills.
12	Hon. A. B. Foster.	61	D. O. Mills.
13 {	Sifton & Ward.	62	D. O. Mills.
13 {	Purcell & Ryan.	63	D. O. Mills.
14 {	Sifton & Ward.	64	Ryan, Whitehead & Ruttan.
14 {	Jos. Whitehead (completing contract No. 14).	65	James Crossen.
15	Joseph Whitehead.	66	Bowie & McNaughton.
16	Canada Central Railway Co.	67	Moncton Car Co.
17	Anderson, Anderson & Co.	68	Ontario Car Co.
18	Red River Transportation Co.	69	North-West Transportation Co.
19	Moses Chevette.	70	North-West Transportation Co.
20	Merchants Lake and River Steamship Co.	71	Toronto Bridge Co.
21	Patrick Kenny.	72	Ontario Car Co.
22	Holcomb & Stewart.	73	Toronto Bridge Co.
23	Sifton & Ward.	74	Wm. Gooderham, Jun.
24	Oliver, Davidson & Co.	75	Pillow, Hersey & Co.
25	Purcell & Ryan.	76	Cooper, Fairman & Co.
26	James Isbester.	77	Stubbs & Co.
27	Merchants Lake and River Steamship Co.	78	Skead & Haycock.
28	Red River Transportation Co.	79	The Truro Patent Frog Co
29	Cooper, Fairman & Co.	80	James Crossen.
30	Robb & Co.	81	Dunlop & Rannie.
31	Patent Bolt and Nut Co.	82	Ontario Car Co.
32	Cooper, Fairman & Co.	83	James Crossen.
32a	LeMay & Blair.	84	Ontario Car Co.
33	Kavanagh, Murphy & Upper.	85	Nobles & Follis.
34	North-West Transportation Co.	86	Fairbanks, Morse & Co.
35	Cooper, Fairman & Co.	87	James Crossen.
36	William Robinson.	88	Walter Oliver.
37	Heney, Charlebois & Flood.	89	J. Patterson
38	Edmond Ingalls.	90	Ferris, Paul & Milwar.
39	John Irving.	91	Canadian Pacific Railway Co.
40	Gouin, Murphy & Upper.	92	Andrew Onderdonk.
41	Purcell & Co.	93	Andrew Onderdonk.
42	Manning, Macdonald, McLaren & Co.	94	Horton & Son.
43	Joseph Upper & Co.	95	Bayliss, Jones & Bayliss.
44	West Cumberland Iron and Steel Co.	96	Guest & Co.
45	Barrow Hematite Steel Co.	97	John McDonald.
46	Ebbw Vale Steel, Iron and Coal Co.	98	Colin Nicol Black.
47	Patent Bolt and Nut Co.		
48	John Ryan.		

## APPENDIX No. II.

TABLE of distances of stations between the Cities of Ottawa and Kingston:—

No. of Station.	Name of Station.	Distances from Ottawa.	Locks.			Dams.			Length of Artificial Canal at each Station, in miles.
			No.	Lift at Low Water.		No.	Length.	Height.	
				Ft.	In.				
		Miles.		Rise			Feet.	Feet.	
1	Ottawa.....	0	8	82	0	3	{ 230 1,320 1,616	{ 18 33 14	4.00
2	Hartwell's.....	4½	2	22	0	.....	100	28	
3	Hogsback.....	5½	2	13	6	1	320	60	
4	Black Rapids.....	9½	1	10	0	1	300	12	
5	Long Island.....	14½	3	27	0	3	850	68	0.13
6	Burritt's.....	40½	1	10	6	1	240	14	1.50
7	Nicholson.....	43½	2	15	2	1	500	9	0.50
8	Clowes.....	44½	1	10	6	1	481	16	0.05
9	Merrickville.....	46½	3	25	0	1	180	6	0.33
10	Maitland.....	55	1	4	9	1	270	8	0.13
11	Edmunds.....	59½	1	10	10	1	343	8	0.06
12	Old Stys.....	60½	2	15	6	1	250	20	0.25
13	Smith's Falls.....	61½	4	33	9	2	600	24	0.13
14	First Rapids or Poonamalie.....	64	1	7	9	1	260	5	1.25
15	Narrows.....	83½	1	4	0	1	600	9	0.06
Total rise at low water.....			.....	292	3				
				Fall.					
16	Isthmus.....	87½	1	4	0	.....	.....	.....	1.25
17	Chaffey's.....	92	1	12	6	.....	.....	.....	0.13
18	Davis.....	94½	1	9	0	1	300	15	0.06
19	Jones' Falls.....	97½	4	60	0	1	300	60	0.25
20	Brewer's Upper Mills.....	108½	2	19	0	1	200	20	1.75
21	do Lower Mills.....	110	1	14	2	1	200	12	4.25
22	Kingston Mills.....	120½	4	46	8	1	6,042	14	0.25
22	Kingston.....	126½	.....	.....	.....	.....	.....	.....	.....
Total fall at low water.....			.....	165	4				
Total.....			47	.....	.....	24	15,472	.....	16.46

## APPENDIX No. 12.

TABLE showing the dates of the closing of the Canals in the Autumn of 1882 and of the opening in the Spring of 1883.

Canals.	Closing.	Opening.
Lachine Canal.....	December 1, 1882.	May 1, 1883.
Beauharnois Canal.....	November 30,	April 30,
Cornwall Canal.....	December 6,	do 28,
Williamsburg Canals.....	do 11,	May 1,
Welland Canal—		
New Canal.....	December 5,	May 5,
Old Canal.....	November 30,	do 5,
Burlington Bay Canal.....	December 11,	do 5,
St. Anne's Lock and Dam.....	November 30,	April 30,
Carillon Canal.....	do 27,	do 28,
Grenville Canal.....	do 27,	May 1,
Culbute Lock and Dam.....		
Chute à Blondeau.....	November 27,	April 28,
Rideau { Kingston Mills.....	do 30,	May 7,
Ottawa.....	do 27,	do 3,
St. Ours' Lock.....	do 28,	April 19,
Chambly Canal.....	do 29,	May 1,
Erie Canal (New York).....	December 7,	do 8,
St. Peter's Canal (Cape Breton).....	January 1, 1883.	April 16, 1883.
Trent Canal Works.....	November 29,	do 28,

## APPENDIX No. 13.

## ST. LAWRENCE NAVIGATION.—TABLE OF DISTANCES.—A.

FROM STRAITS OF BELLE-ILE TO DULUTH, AT HEAD OF LAKE SUPERIOR, BY WATER.

From	To	Sections of Navigation.	Statute Miles.	
			Inter- mediate.	Total to Straits of Belle-Ile
Straits of Belle-Ile.....	Cape Whittle.....	Gulf of St. Lawrence.....	240	240
Cape Whittle.....	West Light, Anticosti.....	do do.....	201	441
West Light, Anticosti.....	Father Point.....	River St. Lawrence.....	202	643
Father Point.....	Rimouski.....	do.....	6	649
Rimouski.....	Bic.....	do.....	12	661
Bic.....	Isle Verte.....	do.....	39	700
Isle Verte (opp. Saguenay)	Quebec.....	do.....	126	826
Quebec.....	Three Rivers.....	do to Tide-water	74	900
Three Rivers.....	Montreal.....	do.....	86	986
Montreal.....	Lachine.....	Lachine Canal.....	8 $\frac{1}{2}$	994 $\frac{1}{2}$
Lachine.....	Beauharnois.....	Lake St. Louis.....	15 $\frac{1}{2}$	1,009 $\frac{1}{2}$
Beauharnois.....	Ste. Cécile.....	Beauharnois Canal.....	11 $\frac{1}{2}$	1,021
Ste. Cécile.....	Cornwall.....	Lake St. Francis.....	32 $\frac{3}{4}$	1,053 $\frac{3}{4}$
Cornwall.....	Dickinson's Landing.....	Cornwall Canal.....	11 $\frac{1}{2}$	1,065 $\frac{1}{2}$
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070 $\frac{1}{2}$
Farran's Point.....	Upper end of Croyle's Island.	Farran's Point Canal...	3 $\frac{1}{2}$	1,071
Upper end of Croyle's Island.	Williamsburg or Morrisburg.	River St. Lawrence.....	10 $\frac{1}{2}$	1,081 $\frac{1}{2}$
Williamsburg.....	Rapid Plat.....	Rapid Plat Canal.....	4	1,085 $\frac{1}{2}$
Rapid Plat.....	Point Iroquois Village.....	River St. Lawrence.....	4 $\frac{1}{2}$	1,090
Point Iroquois Village.....	Upper end Presqu'Île.....	Point Iroquois Canal.....	3	1,093
Presqu'Île.....	Point Cardinal, Edwards- burgh.....	Junction Canal.....	2 $\frac{5}{8}$	1,095 $\frac{5}{8}$
Point Cardinal.....	Head of Galops Rapids.....	Galops Canal.....	2	1,097 $\frac{5}{8}$
Galops Rapids.....	Prescott.....	River St. Lawrence.....	7 $\frac{3}{8}$	1,105
Prescott.....	Kingston.....	do.....	59	1,164
Kingston.....	Port Dalhousie.....	Lake Ontario.....	170	1,334
Port Dalhousie.....	Port Colborne.....	Welland Canal.....	26 $\frac{3}{4}$	1,360 $\frac{3}{4}$
Port Colborne.....	Amherstburg.....	Lake Erie.....	232	1,592 $\frac{1}{2}$
Amherstburg.....	Windsor.....	River Detroit.....	18	1,610 $\frac{1}{2}$
Windsor.....	Foot of St. Mary's Island.....	Lake St. Clair.....	25	1,635 $\frac{1}{2}$
Foot of St. Mary's Island.....	Sarnia.....	River St. Clair.....	33	1,668
Sarnia.....	Foot of St. Joseph's Island.....	Lake Huron.....	270	1,938
Foot of St. Joseph's Island	Foot of Sault Ste. Marie.....	River St. Mary.....	47	1,985
Sault Ste. Marie.....	Head of Sault Ste. Marie.....	Sault Ste. Marie Canal..	1	1,986
Head of Sault Ste. Marie.....	Pointe aux Pins.....	River St. Mary.....	7	1,993
Pointe aux Pins.....	Duluth.....	Lake Superior.....	390	2,383 $\frac{1}{2}$
Prince Arthur Landing to Lake Shebandowan .....			45	45
Lake Shebandowan to North West Angle.....			312	357
North West Angle to Fort Garry (Winnipeg).....			95	452

Of the 2,383 $\frac{1}{2}$  miles from the Straits of Belle-Ile to the Head of Lake Superior, 71 miles are artificial navigation, and 2,312 $\frac{1}{2}$  open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical or 2,234 statute miles.

The total fall from Lake Superior to Tide-water is about 600 feet.

The Steamboat voyage from Collingwood to Prince Arthur Landing is 532 miles.

## APPENDIX No. 14.

CANADIAN PACIFIC RAILWAY,  
OFFICE OF THE ENGINEER-IN-CHIEF,  
OTTAWA, 12th January, 1884.

(Copy of No. 33,033.)

SIR,—Subsequently to the date of my Annual Report of the 22nd September, 1883, more correct information has been obtained in connection with the mileage from check measurements recently made, which necessitates the following corrections, viz:—

Port Arthur to Winnipeg—

Previously 433 miles, corrected to 428 $\frac{1}{2}$  miles.

Winnipeg to West Selkirk—

Previously 20 miles, corrected to 22 miles.

Branch lines constructed, or under construction—

Previously 393 miles corrected to 395 miles.

I have the honor to be, Sir,

Your obedient servant,

COLLINGWOOD SCHREIBER,

*Chief Engineer.*

A. P. BRADLEY, Esq.,  
Secretary Railways and Canals.



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REPORTS

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RAILWAY STATISTICS

OF CANADA

AND CAPITAL, TRAFFIC AND WORKING EXPENDITURE  
OF THE RAILWAYS OF THE DOMINION.

1882-83.

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Printed by Order of Parliament

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OTTAWA:  
PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.  
1884.



DEPARTMENT OF RAILWAYS AND CANALS,  
OFFICE OF THE CHIEF ENGINEER AND GENERAL MANAGER,  
CANADIAN GOVERNMENT RAILWAYS,

OTTAWA, 5th March, 1884.

SIR,—In submitting my Statistical Report upon the Railways of the Dominion, for the year ended the 30th June, 1883, I must state that no improvement has taken place on the part of many of the Railway Companies in the matter of promptness in complying with the Statute calling for statistical returns. Were these received within the time prescribed by the Act, there would be no difficulty in preparing my Report for submission to Parliament within three weeks after the opening of the Session, as the law requires. Promptness on the part of those Companies which systematically, year by year, delay their returns until long after the date prescribed, can, I am satisfied, only be secured by the enforcement of the penalty attaching to non-compliance with the Statute, and I suggest that this be done in future.

During the year under consideration, construction was carried forward with great activity in various parts of the Dominion, while no less than 1,275 miles were added to the length of road in operation, making a total of 8,805½ miles under traffic; and when the uncompleted lines are finished, which may be pretty confidently expected within a couple of years, the railway system of Canada will comprise something over 11,400 miles. Notwithstanding this striking exhibit of railway construction, the end is not yet, it would seem, for many other enterprises are afoot, with greater or less certainty of early accomplishment. These numerous organizations attest the public desire for, if not the need of, railway facilities more extended than those at present enjoyed, as well as the growing and vigorous spirit of enterprise pervading the public mind.

The paid-up capital increased from \$415,611,810.03 to \$494,271,264.95, or 19 per cent.; an increase in the capital per mile completed and under construction of 17.3 per cent.

The share and bonded liability per mile of railway complete and under construction is \$32.253.

The capital liability for shares and bonds of railways in operation is, approximately, \$341,074,466.

The business done by all the lines in operation has grown to large proportions, the gross amount of freight carried during the year being 13,266,255 tons, the gross receipts for which were \$21,320,208. The number of passengers carried was 9,579,948, the gross receipts, together with those for mails and sundries, being \$11,924,377, making a gross revenue of \$33,244,585, an increase in the receipts over those of the preceding year of \$4,216,796. These figures indicate the vast proportions attained by our railway interest, and cannot fail to impress the public with its magnitude and its steady progress year by year. The net earnings for the year were \$8,552,918, an

increase of nearly \$2,000,000 over those of the preceding year, and sufficient to pay, approximately, a dividend of  $2\frac{1}{2}$  per cent. on the share and bonded liability of the roads in operation.

The relative mileage of steel rails increases steadily with construction and renewal. The development of business is, of course, attended by increased wear and tear, and diligence in the maintenance of road and rolling stock has become a necessity which cannot safely be disregarded. I think I may safely state that in these days of competition, every Company feels more and more, each year, how its success depends upon the stability of its road, and the condition in which road and rolling stock are maintained.

In the accidents, I regret to observe a considerable increase, year by year; and this subject should, I think, receive the especial attention of Managers, with a view of reducing to a minimum the chances of injury to their employees and the travelling public. In my opinion, Companies should not be permitted to substitute level crossings for over-head bridges, as it is extremely desirable to keep these fruitful sources of accident within bounds so far as possible, and to insist on their being under the charge of watchmen in the more frequented neighbourhoods. Companies should also be called upon to comply, as some of them do not, with the Statute requiring all over-head bridges to be of a height of not less than 7 feet, to the lowest member of the bridge, above the top of the highest freight car running.

To the tables appended in former years, I have added one showing the location of the Railways.

The following abstracts from the tables will show the comparative state of the railway interest in the years 1881-82 and 1882-83.

The comparison, however, is not so complete as might be desired. My attention has been attracted to the fact that, in years past, Companies whose lines extend into the United States included in their returns the statistics of the American portions of their systems. This has been corrected in the present year, thereby cutting off the traffic of  $368\frac{1}{4}$  miles of road. This will explain the apparent decrease in the number of ungarded crossings and other items, and also the seemingly small increase in the rolling stock. These  $368\frac{1}{4}$  miles are composed of:

Grand Trunk:

Island Pond to Portland.....	149 $\frac{1}{4}$ miles.
Detroit Junction to Port Huron. 59 $\frac{1}{4}$ "	
Ridgeway to Pontiac.....	35 $\frac{1}{4}$ "
	<hr/> 243 $\frac{1}{2}$ miles.
Canada Southern.....	74 $\frac{1}{2}$ "
South Eastern, Boundary Line to Newport.....	21 "
New Brunswick " " to Presqu'Isle.....	29 $\frac{1}{4}$ "
	<hr/> 368 $\frac{1}{4}$ miles.

## MILEAGE.

	1882-83.	1881-82.	Increase.	Decrease.
In operation.....	8,805.62	7,530.44	1,275.18	
Completed (rails laid).....	260.35	539.00		278.65
Under construction.....	2,299.08	3,118.16		818.08
Length of line, 5 ft. 6 in. gauge.....	60.00	60.00		
do 4 ft. 8½ in. do .....	8,307.47	7,705.44	1,102.03	
do 3 ft. 6 in. do .....	198.50	304.00		105.50

## NOMINAL CAPITAL.

	1882-3.	1881-2.	Increase.	Decrease.
	\$ cts.	\$ cts.	\$ cts.	
Ordinary share capital.....	195,591,837 68	142,936,546 63	52,655,291 05	
Preference do .....	73,500,777 87	71,531,940 40	1,968,837 47	
Bonded debt .....	102,134,295 45	92,487,932 42	9,646,363 03	
Aid from Dominion Government.....	94,248,986 74	80,757,559 86	13,491,426 88	
do Ontario do .....	3,294,611 69	3,205,536 02	89,075 67	
do Quebec do .....	12,460,496 11	11,433,097 89	1,027,398 22	
do New Brunswick Government †	2,763,665 00	2,763,665 00		
do Nova Scotia do .....	823,330 00	823,330 00		
do Municipalities..... ‡	9,162,552 94	8,809,944 63	352,608 31	
Capital from other sources.....	3,181,396 63	2,043,279 45	1,138,117 18	
Total.....	\$494,271,264 95	\$415,611,810 30	\$78,659,454 65	

\* Including \$604,019.79, included in share capital of Midland Railway on consolidation.

† Including \$1,180,000, included in share capital of St. John Marine Railway on purchase by present owners.

‡ Including \$1,106,665.37, included in share capital of Midland Railway on consolidation.

## CAPITAL per Mile of Railway Completed and under Construction.

	1882-3.	1881-2.	Increase.	Decrease.
	\$ cts.	\$ cts.	\$ cts.	
Ordinary share capital.....	17,135 43	12,696 44	4,438 99	
Preference do .....	6,439 55	6,353 90	85 65	
Bonded debt.....	8,913 11	8,215 30	697 81	
Government and Municipal aid.....	10,505 00	9,456 30	1,048 70	
Other sources .....	287 50	181 14	106 36	
Total .....	\$43,280 59	\$36,903 08	\$6,377 51	

## MILEAGE of Steel and Iron Rails, and Equipment.

	1882-3.	1881-2.	Increase.	Decrease.
Mileage of iron rails .....	1,725·30	1,983·53	1,167·91	188·07
do steel do .....	7,340·67	6,085·91		
do sidings.....	1,099·80	952·89	146·91	
Number of grain elevators.....	20	20		
do crossings guarded.....	103	89		
do do unguarded.....	7,858	8,477		
do overhead bridges .....	311	349		
do crossings of other railways...	147	140		
do junctions with do ...	178	220		
do do branch lines.....	93	79		
do engines owned.....	1,358	1,328		
do do hired .....	25	3		
do 1st class cars owned.....	643	632		
do do hired.....	28	33		
do 2nd class immigrant cars owned.....	387	362		
do 2nd class immigrant cars hired.....	10	1		
do baggage, mail and express cars owned.....	362	357		
do baggage, mail and express cars hired.....	8	31		
do cattle, box and freight cars owned.....	20,162	18,910		
do cattle, box and freight cars hired.....	1,237	1,392		
do platform cars owned.....	12,436	9,596		
do do hired.....	295	25		
do coal and dumping cars owned	1,851	2,050		
do do do hired..	44			

## OPERATIONS and Mileage.

	1882-83.	1881-82.	Increase.	Decrease.
Train mileage (miles run).....	37,416,092	27,846,411	9,569,681	
Passengers carried.....	9,579,948	9,352,335	227,613	
Freight carried (tons).....	13,266,255	13,575,787		309,532

## TRAFFIC on Principal Lines.

Name of Railway.	Passengers Carried.		Increase.	Decrease.
	1882-3.	1881-2.		
Grand Trunk system.....	4,563,149	4,999,991		436,842
Intercolonial .....	878,600	779,994	98,606	
Canada Southern.....	474,008	312,331	161,677	
Credit Valley.....	283,681	224,450	59,231	
Northern.....	514,942	476,878	38,064	
Midland system.....	338,951	306,223	32,728	
Toronto, Grey and Bruce.....	169,881	145,649	24,232	

## FREIGHT Carried on same Railways.

Name of Railway.	Tons.		Increase.	Decrease.
	1882-3.	1881-2.		
Grand Trunk system.....	5,522,502	6,336,358	.....	813,856
Intercolonial.....	970,961	838,596	132,365	.....
Canada Southern.....	2,138,369	2,129,733	8,636	.....
Credit Valley.....	200,708	142,035	58,673	.....
Northern.....	596,800	614,042	.....	17,242
Midland system.....	514,948	522,112	.....	7,164
Toronto, Grey and Bruce.....	156,331	124,860	31,471	.....

## EARNINGS of the Railways.

—	1882-3.		Increase.	Decrease.
	\$	\$	\$	
Passenger traffic.....	10,538,120	10,018,478	519,642	.....
Freight do .....	21,320,208	17,729,945	3,590,263	.....
Mails and express .....	1,108,429	1,037,460	70,969	.....
Other sources.....	261,424	235,857	25,567	.....
Not stated in detail .....	16,404	6,049	10,355	.....
Total.....	\$33,244,585	\$29,027,789	\$4,216,796	.....

## EARNINGS per Mile of Railway under Traffic.

—	1882-3.		Increase.	Decrease.
	\$	\$	\$	\$
Passenger traffic.....	1,195	1,335	.....	140
Freight do .....	2,420	2,362	58	.....
Mails and express.....	136	138	.....	12
Other sources, and not classified.....	32	32	.....	.....
Total.....	\$3,773	\$3,867	53	\$94

## OPERATING Expenses.

—	1882-3.		Increase.	Decrease.
	\$	\$	\$	\$
Maintenance.....	4,967,925	4,614,041	353,884	.....
Working and repairs of engines.....	8,230,877	6,834,530	1,396,347	.....
do do cars.....	2,248,164	2,219,015	29,149	.....
General operating expenses .....	9,217,891	8,643,939	573,952	.....
Expenses of railways not stated in detail	26,810	79,183	.....	52,373
Total.....	\$24,691,667	\$22,390,708	\$2,300,959	.....

## NET PROFITS.

	1882-3.	1881-2.	Increase.	Decrease.
	\$	\$	\$	
Receipts.....	33,244,586	29,027,780	4,216,797	.....
Expenses.....	24,691,668	22,390,708	2,300,960	.....
Net Profit.....	\$8,552,918	\$6,637,081	\$1,915,837	.....

## ACCIDENTS.

	Killed.		Injured.	
	1882-3.	1881-2.	1882-3.	1881-2.
Fell from cars or engines.....	24	24	74	47
Getting on and off trains in motion.....	12	8	39	30
At work making up trains.....	12	5	6	28
Putting arms or heads out of windows.....	.....	.....	.....	1
Coupling cars.....	5	7	246	158
Collisions or trains thrown from track.....	9	11	52	46
Explosions.....	.....	1	1	4
Striking bridges.....	5	2	4	9
Walking or being on track.....	91	89	43	22
Other causes.....	11	.....	85	52
Total.....	169	147	550	397

## GOVERNMENT and Municipal Loans, Bonuses, &amp;c., paid and promised, including cost of Government Railways.

	1882-3.	1881-2.	Increase.	Decrease.
	\$ cts..	\$ cts.	\$ cts.	
Dominion Government.....	116,456,438 14	114,242,442 86	2,213,995 28	.....
Ontario do.....	4,478,749 02	4,309,149 02	169,600 00	.....
Quebec do.....	14,329,324 22	14,036,742 22	292,582 00	.....
New Brunswick do.....	3,315,500 00	3,315,500 00	.....	.....
Nova Scotia do.....	1,906,875 00	1,906,875 00	.....	.....
Municipalities in Ontario.....	8 378,744 37	8,133,244 37	240,500 00	.....
do Quebec.....	4,171,000 00	4,171,000 00	.....	.....
do New Brunswick.....	296,500 00	296,500 00	.....	.....
do Nova Scotia.....	250,000 00	250,000 00	.....	.....
do Manitoba.....	475,000 00	270,000 00	205,000 00	.....
Total.....	\$154,058,130 75	\$150,936,453 47	\$3,121,677 28	.....

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 AMOUNTS still to be paid to Railways on Completion.
 

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	Total Subsidy.	Paid.	To be Paid.
	\$ cts.	\$ cts.	\$ cts.
Dominion Government.....	116,456,438 14	94,248,986 74	22,207,451 40
Ontario do .....	4,478,749 02	3,294,611 69	1,184,137 33
Quebec do .....	14,329,324 22	12,460,496 11	1,868,828 11
New Brunswick do .....	3,315,500 00	2,763,665 00	551,835 00
Nova Scotia do .....	1,906,875 00	823,330 00	1,083,545 00
Municipalities.....	13,571,244 37	9,162,552 94	4,408,691 43
Total.....	\$154,058,130 75	\$122,753,642 48	\$31,304,488 27

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I have the honour to be, Sir,

Your obedient servant,

COLLINGWOOD SCHREIBER,

*Chief Engineer and Gen. Man., Can. Govt. R'ys.*

TABLE showing Locations of the Railways of the Dominion of Canada, 30th June, 1883.

Name of Railway.	Description.	Gauge.	Distances.	
			Miles.	Total.
		Ft. in.		
Albert.....	Salisbury Station, I.C.R., to Hopewell on Chignecto Bay, N.B.....	4 8½		50·00
Atlantic and North-West.....	Mile End to Lachine, P.Q. (Not in operation. Will cross the St. Lawrence near Lachine. Surveys made to Chambly and St. John).....	4 8½		7·00
Bay of Quinté and Navigation Co.....	Deseronto to Deseronto Junction, G.T.R., O.	4 8½		3·50
Canada Atlantic.....	Ottawa to Coteau under traffic. (56 miles under construction. Located from St. Lawrence to Vermont Boundary. Further location, but partially determined. Connects at Ottawa with C.P.R., and at Coteau with G.T.R.).....			80·00
Canada Southern.....	Main Line—Fort Erie to Windsor, Ont.....	4 8½	229·20	
	Amherstburg Branch—Essex Centre to Amherstburg.....		15·70	
	St. Clair Branch—St. Clair Junction to Courtright.....		62·63	
	Erie and Niagara Branch—Fort Erie to Niagara.....		30·60	
do Leased.....	Welland Branch—Niagara Falls to Welland		14·00	
	Sarnia, Chatham and Erie—Oil City to Petrolia. (Connections with New York Central, Lake Erie, Western, Great Western, Hamilton and North-Western).....		7·00	359·13
Canadian Pacific .....	Main Line—Montreal to Port Moody.....	4 8½	2,893·00	
	Branches constructed and under construction in the North-West.....		395·00	
	Branches in operation in Ontario and Quebec.....		102·00	3,390·00
	Main Line in operation—			
	Miles.			
	Montreal to Mattawa.....	319		
	Port Arthur to Winnipeg.....	441		
	West of Winnipeg.....	722		
		1,482		
	Branches in operation—			
	St. Thérèse to St. Lin.....	15		
	St. Lin to St. Jérôme.....	11		
	St. Thérèse to St. Eustache.....	8		
	Hull to Aylmer.....	7		
	Carleton to Brockville.....	46		
	Smith's Falls to Perth.....	12		
	Winnipeg to Emerson.....	65		
	Winnipeg to Gretna.....	70		
	Pembina Mountain to Manitoba City.....	46		
	Winnipeg to Stonewall.....	18		
		298		
	Total in operation.....	1,780		
Carillon and Grenville.....	Carillon to Grenville, P.Q. (Connecting at both terminus with Ottawa River Navigation Co.).....	5 6		13·00

TABLE showing Locations of Railways, &amp;c—Continued.

Name of Railway.	Description.	Gauge.	Distances.	
			Miles.	Total.
Central Ontario (late Prince Edward County).....	Pictou to Coe Hill, Ont. (About 90 miles of track laid. 32 miles in regular operation from Pictou to Trenton, on G.T.R.)	Ft. in.		
Chatham Branch.....	Chatham, Chatham Ju., I.C.R., to Chatham, N.B.....	4 8½	.....	104.00
Cobourg, Peterboro' and Mar-mora.....	Cobourg to Chambliss, Ont. ....	4 8½	36.50	
	Branch—Trent River to Blairton .....		8.50	
	do Union line to saw mills .....		2.00	
Credit Valley .....	Toronto to St. Thomas .....	4 8½	121.00	
	Branch—Streetsville Junction to Orangeville .....		34.90	
	do Church's Falls to Elora .....		27.50	
Fredericton.....	Fredericton Junction to Fredericton .....		22.50	183.40
Grand Southern .....	Carleton Junction to Fredericton .....		82.50	
Grand Trunk—Grand Trunk Division.....	Main line—Sarnia to Point Lévis and Island Pond .....	4 8½	735.25	
	Sarnia Extension—Port Edward to Great Western .....		2.50	
	Branch—Montreal to wharves .....		2.00	
	Three Rivers Branch—Arthabaska to Doucet's Landing .....		35.25	
	Kingston Branch—Main line to Kingston.....		2.25	
	Galt and Waterloo Branch—Waterloo and Berlin to Galt .....		14.50	
	London Branch—St. Mary's to London.....		22.00	
	Champlain Branch—St. Lambert to Rouse's Point, Montreal to Lachine, St. Isidore to Province Line .....		73.25	
Leased and Operated.....	Buffalo and Lake Huron—Goderich to Fort Erie.....		162.00	
	Georgian Bay and Lake Erie—Port Dover to Wiarton.....		171.50	
	Montreal and Champlain Junction—Brossau's to Province Line .....		27.25	
Great Western Division.....	Main Line—Niagara Falls to Windsor.....		229.63	
	Toronto Branch—Hamilton to Toronto.....		37.00	
	Guelph do Harrisburg to Guelph.....		28.98	
	Brantford do Harrisburg to Brantford.....		8.00	
	Sarnia do Komoka to Sarnia.....		50.85	
	Petrolia do Wyoming to Petrolia.....		4.75	
	Loop Line—Fort Erie to Glencoe.....		145.50	
	Allanburg Branch—Allanburg to Clifton Junction .....		8.35	
Leased and Operated.....	Wellington, Grey and Bruce—Guelph and Palmerston to Southampton and Kincardine .....		168.32	
	London and Port Stanley—London to Port Stanley .....		23.66	
	London, Huron and Bruce—Hyde Park to Wingham Junction.....		68.89	
	Brantford, Norfolk and Port Burwell—Brantford to Tilsonburg Junction.....		34.74	
	Welland.....		14.83	
	2nd Track—Glencoe to Windsor.....		80.94	
	NOTE.—The Georgian Bay and Lake Erie Railway includes the former Georgian Bay and Wellington, Port Dover and Lake Huron, and Stratford and Huron Railways.			2,152.19

TABLE showing Locations of Railways, &amp;c.—Continued.

Name of Railway.	Description.	Gauge.	Distances.	
			Miles.	Total.
Halifax and Cape Breton .....	New Glasgow to Gut of Canso .....	Ft. in.		
Intercolonial .....	Main Line—Halifax to Quebec .....	4 8½	686·00	79·70
	Branch—Moncton to St. John .....		89·00	
	do Truro to Pictou .....		52·00	
	do Painssec to Pointe du Chêne .....		11·00	
	do Rivière du Loup to wharf .....		2·00	
International .....	Lennoxville, P.Q., to Boundary Line .....	4 8½		840·00
Jacques Cartier Union .....	Grand Trunk, <i>via</i> Lachine, to Canadian Pacific, near Sault au Recollet .....			91·60
Kent Northern .....	Richibucto, N.B., to Intercolonial Railway ..	4 8½		6·50
Kingston and Pembroke .....	Kingston to Renfrew .....	4 8½	105·00	27·00
	Iron Junction Branch—Bedford to Glen-dower .....		4·00	
	Robertville Branch—Mississippi to Robertville .....		2·00	
	Wilbur Branch—Lavant to Wilbur .....		1·00	
	NOTE.—This railway runs from the Grand Trunk at Kingston to the Canadian Pacific at Renfrew, connecting with the Ontario and Quebec Railway at Sharbot Lake. Eighty-one miles are under traffic. It is to be continued to Pembroke.			112·00
Massawippi Valley .....	Stanstead to Sherbrooke, P.Q. (Connects with Connecticut and Passumpsic, International, Grand Trunk and Quebec Central Railways) .....	4 8½		34·00
Midland .....	Midland Division .....	4 8½	139·03	
	Toronto and Nipissing Division .....		104·55	
	Grand Junction Division .....		88·10	
	Whitby and Haliburton Division .....		99·84	
	Toronto and Ottawa Division .....		30·32	
	Medonte Tramway .....		8·59	
	NOTE.—The Grand Junction includes the former Belleville and North Hastings Railway, and the Whitby and Haliburton includes the Victoria and the Whitby, Port Perry and Lindsay Railways.			470·43
Montreal and Vermont Junction .....	From Stanstead, Shefford and Chambly Railway, near St. Johns, P.Q., to Vermont and Canada Railway at Boundary Line ..	4 8½		23·60
Montreal and Sorel .....	Armstrong to St. Lambert, opposite Montreal. (Connects with South-Eastern and Grand Trunk.) .....	4 8½		46·00
Napanee, Tamworth and Quebec .....	Napanee and Tamworth, Ont. (21 miles constructed; not in operation) .....	4 8½		28·50
Napierville Junction and Quarry Co. ....	From Grand Trunk to the Company's quarries .....	4 8½		2·50
New Brunswick .....	Gibson (opposite Fredericton, N.B.) to Edmundston .....	4 8½	164·00	
	Branch—Aroostook to Boundary .....		4·00	
	do Woodstock to Newbury .....		6·00	
				174·00

TABLE showing Locations of Railways, &amp;c.—Continued.

Name of Railway.	Description.	Gauge.	Distances.	
			Miles.	Total.
		Ft. in.		
W Brunswick and Canada.	St. Andrews to Woodstock, N.B. ....	4 8½	93·00	
	Branch—Houlton to Debec .....		8·00	
	do St. Stephen to Watts .....		19·00	
	do McAdam to Vanceboro' .....		7·00	
				127·00
Northern and North-Western.	Combined Northern Railway of Canada and Hamilton and North-Western:—	4 8½		
	Main Line—Toronto to Collingwood ...		94·96	
	do Port Dover to Collingwood .....		151·00	
	Branch—Lefroy to Bell Ewart .....		1·34	
	do Allandale to Gravenhurst .....		50·94	
	do Beeton to Allandale .....		25·30	
	do Collingwood to Meaford .....		20·50	
	do Colwell to Penetanguishene .....		33·50	
	Flos Tramway—Elmvale to Hillsdale. (Con nections with Grand Trunk, Great Western, Credit Valley, Toronto, Grey and Bruce.)		8·50	
				386·04
North Shore .....	Quebec to Montreal (St. Martin Junction)...	4 8½	159·00	
	Piles Branch—Piles Branch Junction to Grandes Piles .....		27·50	
	Joliette Branch (formerly St. Lawrence and Industry)—Joliette to St. Felix .....		17·00	
	Berthier Branch—Berthier Junction to Berthierville .....		2·00	
	Loop Line—Three Rivers to Town of Three Rivers (Connections at Quebec with Grand Trunk and Intercolonial and Que- bec Central.) .....		3·50	
				209·00
Ontario and Quebec .....	Toronto to Perth, Ont. ....	4 8½	199·00	
Petitcodiac and Elgin .....	Petitcodiac (Intercolonial Railway) to Elgin, N.B. ....	4 8½		14·00
Prince Edward Island .....	Main Line—Alberton to Georgetown .....	3 6	147·00	
	Branch—Mount Stewart to Souris .....		38·40	
	do Alberton to Tignish .....		13·10	
				198·50
Quebec and Lake St. John ...	Quebec to Lake St. John, Que. (42 miles constructed, 36 miles under traffic, balance under construction. Connects at Quebec with North Shore, Grand Trunk, Inter- colonial and Quebec Central.) .....	4 8½		175·00
Quebec Central .....	Main Line—Sherbrooke to Lévis, Que .....	4 8½	139·00	
	Chaudière Branch—Beauce Junction to St. Joseph .....		11·00	
	Deep Water Extension (Lévis) .....		5·00	
	East Angus to Angus Mills. (45 miles under construction, from beyond St. Joseph to Boundary. 146 miles under traffic. Con- nects with Grand Trunk, Intercolonial and Pascumpee. This railway includes former Lévis and Kennebec, purchased in March, 1881.) .....		1·00	
				156·00
Stanstead, Shefford and Chamblay .....	From near St. John's, Que., to East Waterloo. (Connects with South-Eastern and Cham- plain and St. Lawrence Junction.) .....	4 8½		43·00

TABLE showing Locations of Railways, &c.—*Concluded.*

Name of Railway.	Description.	Gauge.	Distance.	
			Miles.	Total.
		Ft. in.		
South-Eastern .....	Main Line—West Farnham to Boundary line .....		44'00	
	Northern Division—Sutton Junction to Sorel .....		96'00	
	Branch—Drummond to L' Avenir .....		12'00	
Leased Lines .....	Montreal, Portland and Boston—St. Lambert to Farnham .....		36'00	
	Branch—Marieville to St. Césaire .....		9'00	
	Lake Champlain and St. Lawrence Junction—Stanbridge to St. Guillaume. (Connects with Connecticut and Pascumpsec Railway, Grand Trunk, and Stanstead, Shefford and Chambly.) .....	4 8½	63'00	260'00
St. John and Maine. ....	St. John, N.B., to St. Croix, on Boundary line. (Connects with Intercolonial, Grand Southern and Fredericton Railways).....	4 8½		92'00
St. Lawrence and Ottawa...	Ottawa to Prescott .....	4 8½	54'00	
	Branch—Chaudière Junction to Chaudière. (Connects with Grand Trunk and St. Lawrence Steamers at Prescott, and with Canadian Pacific Railway at Chaudière, Ottawa) .....		5'00	59'00
St. Martin's and Upham.....	Hampton Junction, Intercolonial Railway, to St. Martin's, on Bay of Fundy .....			30'00
Spring Hill and Parrsboro'...	Spring Hill Mines to Parrsboro', N.S. ....		27'00	
	Branch—Spring Hill Junction to Mines. ....	4 8½	5'00	32'00
Toronto, Grey and Bruce.....	Main Line—Toronto to Owen Sound .....		122'00	
	Branch—Orangeville to Teeswater .....		69'00	
	do To Cardwell Junction, Hamilton and North-Western Railway. (Connects at Toronto with Grand Trunk and Credit Valley Railways, at Weston with Grand Trunk and at Orangeville with Credit Valley, and at Cardwell Junction with Hamilton and North-Western) .....	4 8½	0'50	191'50
Waterloo and Magog.....	Magog to Waterloo, Que. (Connects with Stanstead, Shefford and Chambly, and also with South Eastern. The Missisquoi Valley Railway, so far as constructed—10·10 miles—is operated by the Waterloo and Magog; it is to extend from Richmond to Masonville, 57·10 miles).....	4 8½		23'00
Welland.....	From Port Colborne to Port Dalhousie, Ont. (Connects with Grand Trunk at Port Colborne, Great Western at Merritton and Welland Junction, and Canada Southern, near Welland) .....	4 8½		25'00
Western Counties.....	Yarmouth to Digby, N.S. (Connects at Yarmouth with Nova Scotia Steamship Company's steamers for Boston, and at Digby with same Company's steamers for Annapolis, St. John and Boston) .....	4 8½		67'00
Windsor and Annapolis.....	Windsor to Annapolis, N.S. ....	4 8½	84'00	
Leased.....	Windsor Branch—Windsor to Windsor Junction; also running powers over trunk line of Intercolonial Railway, Windsor Junction to Halifax, 14 miles.....		32'00	116'00

\*Granted to European and North American, and included in Share Capital on purchase by present owners.



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SUMMARY STATEMENTS.

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## No. 2.—SUMMARY STATEMENT of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Weight per Yard.		Number of Ties to Mile.								
		Completed. (Rails laid.)	Under Construc- tion.	Iron Rails.	Steel Rails.		Iron Rails.	Steel Rails.									
							Lbs.	Lbs.									
1	Albert .....	48·00	.....	48·00	.....	2·25	56	.....	2,240								
2	Atlantic and North-West...	7·00	.....	.....	7·00	.....	.....	56	2,640								
3	Bay of Quinté Navig. Co.	3·50	.....	.....	3·50	0·25	.....	50	3,000								
4	Canada Atlantic.....	80·00	56·00	.....	80·00	6·00	.....	56	2,300								
5	Canada Southern ....	345·13	.....	99·91	245·22	102·67	60	60	2,800								
6	Canadian Pacific.....	1903·75	1486·25	60·00	1843·75	128·00	56 & 58	56 & 60	2,640								
7	Carillon and Grenville.....	13·00	.....	13·00	.....	.....	85	.....	2,200								
8	Central Ontario.....	67·00	37·00	.....	67·00	.....	.....	42 & 56	2,640								
9	Chatham Branch.....	9·00	.....	7·00	2·00	0·07	56	58	2,640								
10	Cobourg, Peterboro' and Marmora.....	47·00	.....	47·00	.....	.....	56	.....	2,650								
11	Credit Valley .....	183·50	.....	.....	183·50	31·10	.....	56	2,600								
12	Erie and Huron .....	40·00	83·00	.....	40·00	2·50	.....	54	2,320								
13	Fredericton .....	22·50	.....	22·00	.....	.....	56	56	2,300								
14	Grand Southern.....	82·50	.....	.....	82·50	.....	.....	50	2,600								
15	Grand Trunk (Gr'd Trunk Division) 887·00 ) Buffalo and Lake Huron..... 162·00 Georgian Bay & Lake Erie..... 171·50 Montreal and Champlain Junction..... 27·25 (Great West. Div.) Great Western... 593·97 ) London & Port Stanley..... 23·75 Wellingt'n,Grey & Bruce..... 168·35 London, Huron & Bruce..... 68·98 Brantford,Nor'k & Port Burwell. 34·74 Welland..... 14·83 )	2152·19	.....	191·00	1961·19	392·75	65	66	2,640								
16	Great American and Euro- pean Short Line, Oxford and New Glasgow .....									.....	90·00	.....	.....	.....	.....	.....	.....
17	Halifax and Cape Breton Railway Coal Co. ....									79·75	.....	.....	79·75	3·00	.....	56	2,112
18	Intercolonial.....									840·00	.....	2·25	837·75	114·33	.....	56 & 67	2,640
19	International.....									69·66	.....	.....	69·66	.....	56	.....	2,260
20	Kent Northern.....									27·00	.....	27·00	.....	1·00	.....	.....	2,640
21	Kingston and Pembroke.....									81·00	31·00	.....	81·00	10·00	.....	56	2,640
22	Manitoba and Northwestern									79·00	.....	.....	79·00	5·00	.....	45, 56 & 67	3,000
23	Manitoba and Southwestern									50·70	.....	.....	50·70	4·50	.....	56	.....
24	Massawippi Valley.....									34·00	.....	2·00	32·00	.....	56	50	2,200
25	Midland..... 139·00 ) Toronto & Nipis- sing..... 104·55 Grand Junction. 88·10 )																
	Carried forward .....	6,265·18	1,783·25	519·16	5,745·52	813·42	.....	.....	.....								

Characteristics of Roads, &c.

Nature of Rail Fastening.	No. of Grain Elevators.		No. of Level Crossings.		No. of overhead Bridges.	Height of overhead Bridges above rail level.	Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of sharpest curve.	Number of feet per mile of heaviest gradient.	Gauge of Railway.		Remarks.
	Guarded.	Not Guarded.											Number.	
Fish plates.....		91						1			76	4'8½	1	
do .....								1		1433	52'80	4'8½	2	
do .....		11						1		400	90	4'8½	3	
do .....	3	51					2	1		2865	40	4'8½	4	
Nutt plates, 4 bolts and washers.....		258	8	19	8	9	4	1432	75	4'8½	5			
Fish plates & angle bars.....	1	7	380	7	21'6	1	6	10	1092	87	4'8½	6		
Fish plates & chairs..	1	7	1	16					1910	100	5'6	7		
do & bolts.....						4	2			60	4'8½	8		
do & scabbards.....		5					1		5280	14	4'8½	9		
do & chairs .....		1	31			1	2		573	96	5'6½	10		
do .....	4	3	194	4	21	9	2	2	955	70	4'8½	11		
do .....		42				2	2		1901	44	4'8½	12		
do .....		11				1	1				4'8½	13		
do .....						3			717	80	4'8½	14		
do .....	5	62	1757	197	{ 15 6 to 28'4 }	56	63	31	1495	81	4'8½	15		
do .....											4'8½	16		
do .....		62	9				1			79'75	4'8½	17		
do angle plate & scabbards	1	8	2172	28 { 18½ to 35 }	1	15	11	694	65	4'8½	18			
do & chairs.....		6				1	1		1433	60	4'8½	20		
do .....	2	43	1	17	2		2		955	79	4'8½	21		
do .....		64					1		955	77	4'8½	22		
Fish plates .....		20	1	19					442	72	4'8½	24		
	11	87	5205	256		91	114	58						

## No. 2.—SUMMARY STATEMENT OF

Number.	Name of Railway.	Length of Line.				Length of Siding.	Weight per Yard.		Number of Ties to mile.
		Completed (Rails laid.)	Under construc- tion.	Iron Rails.	Steel Rails.		Iron Rails.	Steel Rails.	
	Brought forward.....	6,265·18	1,783·25	519·16	5,745·52	803·42	Lbs.	Lbs.	
	Whitby & Hali- burton..... 99·84	470·43		179·92	290·51	66·38	56	56	2,640
	Toronto and Ot- tawa..... 30·32								
	Medonté Tram- way ..... 8·59								
26	Montreal and Vermont Junction.....	23·60			23·60	2·00		60	2,600
27	Montreal and Sorel.....	46·00			46·00	2·00		56	
28	Napanees, Tamworth and Quebec.....		28·50						
29	Napierville Junction and Quarry Co.....	2·50		2·50			56		2,500
30	New Brunswick.... 174·00								
	New Brunswick and Canada..... 127·00	301·00		84·90	217·00	23·00	45 & 56	56	2,113
31	North Shore.....	209·00		30·75	178·25	26·25	56	56	2,640
32	Northern and Northwestern	386·04		152·50	233·54	74·74	56	56	
33	Nova Scotia, Nictaux and Atlantic.....		75·00						
34	Ontario and Quebec.....		199·33						
35	Petitcodiac and Elgin.....	14·00		14·00		0·33	56		2,240
36	Pontiac and Pacific Junction	4·00	23·00	4·00					
37	Prince Edward Island.....	198·50		167·75	30·75	14·25	40	50	2,640
38	Quebec and Lake St. John..	42·00	133·00		42·00	2·00		56	2,640
39	Quebec Central.....	156·00	45·00	87·00	69·00	10·00	56	56	2,640
40	Stanstead, Shefford and Chamblay.....	43·00		37·00	6·00	5·50	60	60	2,400
41	St. John and Maine.....	92·00		65·00	27·00		56	56 & 57½	
42	St. Lawrence and Ottawa..	59·00		12·00	47·00	9·00	56	56 & 57½	2,640
43	St. Martin's and Upham....	29·12		29·12			56		2,240
44	South Eastern..... 152·00								
	Lake Champlain St. Lawrence... 63·00	260·00	12·00	144·50	115·50	27·00	57¼	60	2,940
	Montreal, Port- land & Boston. 45·00								
45	Spring Hill and Parrsboro' Railway Coal Co.....	32·00		27·00	5·00	1·25			
46	Toronto, Grey and Bruce...	191·50		5·00	186·50	15·50		60	2,464
47	Welland.....	25·00			25·00	5·20		61	2,650
48	Waterloo & Magog 23·00	33·10		33·10		4·00		56	2,400
	Missisquoi Valley 10·10								
49	Western Counties.....	67·00		67·00		4·00	56		2,600
50	Windsor & Anna- polis..... 84·00	116·00		64·00	52·00	4·50	50 & 67	56	2,640
	Windsor Branch 32·00								
	Total.....	9,065·97	2,299·08	1,725·30	7,340·67	1,099·80			

Characteristics of Roads, &c.—*Concluded.*

Nature of Rail Fastening.	No. of Grain Elevators.		No. of Level Crossings.		Number of overhead Bridges.	Height of overhead Bridges above rail level.	Level Crossing of other Railways.	Number of Junctions with other Railways.	Number of Junction with Branch Lines.	Radius of sharpest curve.	Number of feet per mile of heaviest gradient.	Gauge of Rail-way.		Remarks.
	No.	Guarded.	Not Guarded.										Number.	
.....	11	87	5,205	256	.....	.....	91	114	58	.....	.....	.....	.....	.....
Fish plates.....	2	2	562	9	21	8	7	11	600	106	4' 8½	25		
do .....			51	1	17½		2			52	4' 8½	26		
.....											4' 8½	27		
.....											4' 8½	28		
Chairs.....							1			13	4' 8½	29		
Fish plates.....			125	2	18	2	3	5	540	80	4' 8½	30		
do .....		2	134	1	19	12	2	3	800	64	4' 8½	31		
do & bolts.....	3	5	300	16	.....	9	11	.....	1433	74	4' 8½	32		
.....												33		
Chairs.....			9				1		1000	80	4' 8½	35		
Fish plates.....											4' 8½	36		
do .....			955	2	17½				395	75	3' 6"	37		
do .....			17	2	15		1		574	132	4' 8½	38		
do .....			26			1	4	1	882	76	4' 8½	39		
do & wrought chairs..			42			3	4			60	4' 8½	40		
.....			21	2	16	3	3	1			4' 8½	41		
Fish plates and steel scabbards	1	1	66	8	18	1	2	2	1146	52·80	4' 8½	42		
Sleeves Fish plates and chairs.....			22					1	717	129½	4' 8½	43		
Fish plates .....		1	212	1	20½	7	9	5	637	80	4' 8½	44		
Chairs .....			12				1		900	60	4' 8½	45		
Fish plates & bolts...	1	3		7	17 & 22	6	6	2	500	100	4' 8½	46		
do & chairs. ...	2		30	3	17	3	4		1930	84	4' 8½	47		
do do .....		1				1	2	1	15°	90	4' 8½	48		
do .....		1							600	84	4' 8½	49		
do .....			69	1	32		1		665	75½	4' 8½	50		
	20	103	7,858	311	.....	147	178	91	.....	.....	.....			

## No. 3.—SUMMARY STATEMENT of the different

Number.	Name of Railway.	Length of Line.		Number of Engines.		Number of 1st Class Cars.	
		Com- pleted.	Under Construc- tion.	Ow- ned.	Hired.	Ow- ned.	Hired.
1	Albert.....	48·00		3		3	
2	Atlantic and North-West.....	7·00					
3	Bay of Quinté Navigation Company.....	3·50		1		1	
4	Canada Atlantic.....	80·00	56·00	5	4	1	2
5	Canada Southern.....	345·13		120		26	
6	Canadian Pacific.....	1,903·75	1,486·25	186		90	
7	Carillon and Grenville.....	13·00		3		3	
8	Central Ontario.....	67·00	37·00	6		2	
9	Chatham Branch.....	9·00		2		1	
10	Cobourg, Peterborough and Marmora.....	47·00		5		3	
11	Credit Valley.....	183·50		17		10	
12	Erie and Huron.....	40·00	83·00				
13	Fredericton.....	22·50		2	3		
14	Grand Southern.....	82·50		5			
15	Grand Trunk (Grand Trunk Division).....	887·00					
	Buffalo and Lake Huron.....	162·00					
	Georgian Bay and Lake Erie.....	171·00					
	Montreal and Champlain Junction.....	27·25					
	(Great Western Division)—						
	Great Western.....	593·97	2,152·19	592		285	
	London and Port Stanley.....	23·75					
	Wellington, Grey and Bruce.....	168·35					
	London, Huron and Bruce.....	69·00					
	Brantford, Norfolk and Port Burwell.....	34·74					
	Welland.....	14·83					
16	Great American and European Short Line.....		90·00				
	Oxford and New Glasgow.....						
17	Halifax and Cape Breton Railway and Coal Co.....	79·75		9		6	
18	Intercolonial.....	840·00		138		52	
19	International.....	69·66		3		2	
20	Kent Northern.....	27·00		2		1	
21	Kingston and Pembroke.....	81·00	31·00	9		5	
22	Manitoba and North-Western.....	79·00		2		2	
23	Manitoba and South-Western Colonization.....	50·70					
24	Massawippi Valley.....	34·00					
25	Midland.....	139·00					
	Toronto and Nipissing.....	104·55					
	Grand Junction.....	88·10					
	Whitby and Haliburton.....	99·84	470·43	36	16	29	3
	Toronto and Ottawa.....	30·32					
	Medonté Tramway.....	8·59					
26	Montreal and Vermont Junction.....	23·60					
27	Montreal and Sorel.....	46·00					
28	Napanee, Tamworth and Quebec.....		28·50				
29	Napierville Junction and Quarry Co.....	2·50					
30	New Brunswick.....	174·00					
	New Brunswick and Canada.....	127·00	301·00	20		9	
31	North Shore.....	209·00		21		15	
32	Northern and North-Western.....	386·04		46		24	6
33	Nova Scotia, Nictaux and Atlantic.....		75·00				
34	Ontario and Quebec.....		199·33				
35	Petitcodiac and Elgin.....	14·00		1			
36	Pontiac and Pacific Junction.....	4·00	23·00				
	Carried forward.....	7,721·25	2,109·08	1,234	23	570	11

## descriptions of Rolling Stock.

Number of Second Class and Emi grant Cars.		Number of Bag- gage, Mail and Express Cars.		Number of Cattle and Box Freight Cars.		Number of Plat- form Cars.		Number of Hopper and Dumping Cars.		Remarks.
Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	
.....	.....	1	.....	10	.....	21	.....	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
16	.....	20	.....	2,061	546	231	.....	.....	.....	5
28	.....	44	.....	1,602	.....	*3,579	.....	.....	.....	6
3	.....	4	.....	.....	.....	4	.....	.....	.....	7
3	.....	1	.....	13	.....	53	.....	.....	.....	8
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	.....	1	.....	1	.....	50	.....	†200	.....	10
16	.....	5	.....	304	.....	218	.....	.....	.....	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
2	.....	.....	.....	5	.....	11	.....	.....	.....	13
4	.....	2	.....	8	.....	42	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
176	.....	121	.....	12,556	.....	3,601	.....	.....	.....	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
4	.....	6	.....	33	.....	70	.....	150	.....	17
51	.....	35	.....	1,550	.....	1,371	.....	1,378	.....	18
.....	.....	2	.....	2	.....	28	.....	.....	.....	19
1	.....	1	.....	.....	.....	14	.....	.....	.....	20
.....	.....	4	.....	15	.....	180	.....	.....	.....	21
2	.....	1	.....	57	.....	45	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
4	9	28	2	297	154	746	185	.....	.....	25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29
13	.....	2	.....	142	.....	269	.....	.....	.....	30
15	.....	10	.....	264	.....	260	.....	.....	.....	31
7	.....	25	.....	428	22	760	.....	3	44	32
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
347	9	313	2	19,348	722	11,543	185	1,731	44	.....

## No. 3.—SUMMARY STATEMENT of the different

Number.	Name of Railway.	Length of Line.		Number of Engines.		Number of 1st Class Cars.	
		Com- pleted.	Under Construc- tion.	Owned.	Hired.	Owned.	Hired.
	Brought forward .....	7,721·75	2,109·08	1,234	23	570	11
37	Prince Edward Island .....	198·50		20		14	
38	Quebec and Lake St. John .....	42·00	133·00	4		2	
39	Quebec Central .....	156·00	45·00	10		6	
40	Stanstead, Shefford and Chambly .....	43·00					
41	St. John and Maine .....	92·00		8		7	
42	St. Lawrence and Ottawa .....	59·00		10		6	
43	St. Martins and Upham .....	29·12		1	1		1
44	South-Eastern .....	152·00					
	Lake Champlain and St. Lawrence .....	63·00					
	Montreal, Portland and Boston .....	45·00					
45	Spring Hill and Parrsboro' Railway and Coal Co. ....	32·00		1		1	
46	Toronto, Grey and Bruce .....	191·50		22		16	
47	Welland .....	25·00		4		5	
48	Waterloo and Magog .....	23·00					
	Missisquoi Valley .....	10·10			1		1
49	Western Counties .....	67·00		4		2	
50	Windsor and Annapolis .....	84·00					
	Windsor Branch .....	32·00		10		5	
	Total .....	9,065·97	2,299·08	1,358	25	643	28

descriptions of Rolling Stock—*Concluded.*

Number of Second Class and Emigrant Cars.		Number of Baggage, Mail and Express Cars.		Number of Cattle and Box Freight Cars.		Number of Platform Cars.		Number of Hopper and Dumping Cars.		Remarks.
Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	
347	9	313	2	19,348	722	11,543	185	1,731	44	
12	.....	3	.....	175	.....	125	.....	.....	.....	37
2	.....	2	.....	4	.....	55	.....	.....	.....	38
6	.....	5	.....	78	.....	172	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	7	.....	19	.....	90	.....	.....	.....	41
4	.....	5	.....	97	.....	54	.....	.....	.....	42
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	43
8	.....	6	4	61	371	248	100	50	.....	44
.....	.....	1	.....	2	.....	6	.....	50	.....	45
.....	.....	8	.....	174	134	.....	.....	.....	.....	46
1	.....	6	.....	123	.....	13	.....	.....	.....	47
.....	.....	.....	2	.....	10	.....	10	.....	.....	48
2	.....	2	.....	19	.....	58	.....	.....	.....	49
5	.....	4	.....	62	.....	72	.....	20	.....	50
387	10	362	8	20,162	1,237	12,436	295	1,581	44	

Operated by Central Vermont.

Also two drawing-room cars.

## No. 4.—SUMMARY STATEMENT of the

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
1	Albert .....	48·00	710	5,725	29,770	36,205
2	Bay of Quinté Navigation Co.....	3·50	3,692	210	2 500	6,402
3	Canada Atlantic .....	80·00	65 514	27,044	28,042	120,600
4	Canada Southern.....	345·13	825,300	1,600,925	89,152	2,515,377
5	Canadian Pacific .....	1,780 00	936,721	3,384,575	.....	4,321,296
6	Carillon and Grenville.....	13·00	3,840	.....	2,500	6,340
7	Central Ontario .....	32·00	10,000	.....	9,400	19,400
8	Chatham Branch .....	9·00	.....	.....	19,404	19,404
9	Cobourg, Peterborough and Marmora..	15·00	.....	.....	8,500	8,500
10	Credit Valley .....	183·50	299,627	190,803	.....	490,430
11	Fredericton .....	22·50	14,638	.....	29,246	29,246
12	Grand Southern .....	82·50	.....	.....	.....	.....
13	Grand Trunk .....	887·03	.....	.....	.....	.....
	Buffalo & Lake Huron ....	162·00	.....	.....	.....	.....
	Georgian Bay & Lake Erie 171·50	.....	.....	.....	.....	.....
	Montreal & Champlain P'n 27·25	.....	.....	.....	.....	.....
	Great Western Division—	.....	.....	.....	.....	.....
	Great Western .....	593·97	.....	.....	.....	.....
	London & Port Stanley... 23·75	.....	.....	.....	.....	.....
	Wellington, Grey & Bruce 168·25	.....	.....	.....	.....	.....
	London, Huron & Bruce... 69·00	.....	.....	.....	.....	.....
	Brantford, Norfolk & Port	.....	.....	.....	.....	.....
	Burwell .....	34·75	.....	.....	.....	.....
	Welland .....	14·83	.....	.....	.....	.....
14	Halifax and Cape Breton Railway and	.....	.....	.....	.....	.....
	Coal Co .....	79·75	.....	.....	.....	.....
15	Intercolonial .....	840·00	827,640	2,717,091	790,997	3,615,192
16	International .....	69·66	.....	.....	.....	.....
17	Kent Northern .....	27·00	.....	.....	.....	.....
18	Kingston and Pembroke .....	81·00	.....	.....	.....	126,672
19	Manitoba and North-Western .....	79·00	.....	.....	.....	.....
20	Manitoba and South-Western .....	50·70	.....	.....	.....	.....
21	Massawippi Valley .....	34·00	75,766	74,693	6,353	156,812
22	Midland .....	139·00	.....	.....	.....	.....
	Toronto and Nipissing ...	104·55	.....	.....	.....	.....
	Grand Junction.....	88·10	.....	.....	.....	.....
	Whitby and Haliburton..	99·84	.....	.....	.....	.....
	Toronto and Ottawa.....	30·32	.....	.....	.....	.....
	Medonté Tramway .....	8·59	.....	.....	.....	.....
23	Montreal and Vermont Junction.....	23·60	64,560	114,026	752	179,338
24	Montreal and Sorel .....	46·00	.....	.....	.....	.....
25	New Brunswick .....	174·00	.....	.....	.....	.....
	N. Brunswick & Canada. 127·00	.....	.....	.....	.....	.....
26	North Shore .....	209 00	224,800	222,838	52,977	500,615
27	Northern and North-Western .....	336·04	433,612	420,295	167,167	1,064,432
28	Petitcodiac and Elgin .....	14·00	.....	.....	6,048	6,048
29	Prince Edward Island .....	198·50	77,225	.....	162,965	248,819
30	Quebec and Lake St. John .....	36·00	.....	.....	.....	.....
31	Quebec Central .....	146·00	71,663	100,164	17,185	189,012
32	Stanstead, Shefford and Chambly ....	43 00	41,986	55,650	8,079	105,715
33	St. John and Maine .....	92·00	.....	.....	.....	1,254,266
34	St. Lawrence and Ottawa.....	59·00	28,333	18,684	33,395	80,412
35	St. Martin's and Upham.....	29·12	.....	.....	13,600	13,600
36	South-Eastern .....	152·00	.....	.....	.....	.....
	Lake Champlain and St.	.....	.....	.....	.....	.....
	Lawrence .....	63 00	.....	.....	.....	.....
	Montreal, Portland and	.....	.....	.....	.....	.....
	Boston .....	36·00	.....	.....	.....	.....
	Carried forward ..	8,341·02	.....	.....	.....	36,724,290

## Operations of the Year and Mileage.

Engine Mileage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs., Handled.	Average Rate of Speed of Passenger Trains.— Miles per hour.	Average Rate of Speed of Freight Trains.— Miles per hour.	Number.	Remarks.
37,120	12,834	32,948	15	12	1	
6,402	7,003	13,343	10	10	2	
120,600	47,545	43,452	30	15	3	
3,533,803	474,008	2,138,369	35	15	4	
5,344,150	800,419	1,065,272	25	16½	5	
6,640	5,920	2,200	25	20	6	
19,400	33,435	.....	20	.....	7	
19,960	.....	.....	20	.....	8	
8,750	5,022	23,660	15	.....	9	
512,615	283,681	200,708	21½	10½	10	
45,250	23,583	11,295	23	17	11	
.....	.....	.....	.....	.....	12	Not operated by Company:
17,189,275	4,563,149	5,522,502	27	12	13	
.....	44,002	18,880	30	18	14	
4,406,189	878,600	970,961	25	15	15	
.....	21,450	30,802	.....	.....	16	
.....	.....	.....	.....	.....	17	Opened for traffic 1st Nov., 1883.
126,672	37,998	105,341	15	15	18	
.....	.....	.....	.....	.....	19	Not in regular operation.
.....	.....	.....	.....	.....	20	Operated by Contractors.
156,812	56,899	90,361	22	10	21	
9,858,853	338,951	514,948	22	15	22	
179,338	102,685	689,321	30	12	23	
.....	.....	.....	.....	.....	24	No information.
214,795	82,452	187,743	20	12	25	
659,471	326,038	183,364	35	15	26	
1,364,342	514,942	596,800	28	18	27	
6,048	1,855	8,765	.....	12	28	
313,760	117,162	51,920	20	13½	29	
.....	41,376	20,090	25	15	30	
200,498	83,625	59,808	25	15	31	
105,715	31,615	36,393	23	12	32	
1,510,053	99,327	57,306	.....	.....	33	
137,475	33,825	57,208	24	14	34	
13,700	6,100	6,075	.....	15	35	
688,774	103,558	190,795	30	15	36	
46,804,510	9,179,159	12,929,630	.....	.....	.....	

## No. 4.—SUMMARY STATEMENT of the Opera

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
	Brought forward .....	8,341.02	.....	.....	.....	36,724,290
37	Spring Hill and Parrsboro' .....	32.00	.....	.....	.....	.....
38	Toronto, Grey and Bruce .....	191.50	227,037	155,403	.....	382,440
39	Welland .....	25.00	60,046	4,795	556	65,397
40	Waterloo and Magog..... 23.00 }	33.10	13,238	.....	9,620	22,858
	Missisquoi Valley ..... 10.00 }					
41	Western Counties .....	67.00	.....	.....	48,502	48,502
42	Windsor and Annapolis..... 84.00 }	116.00	81,073	Included in following. }	91,532	172,605
	Windsor Branch ..... 32.00 }					
	Totals.....	8,805.62	.....	.....	.....	37,416,092

tions of the Year and Miléage—*Concluded.*

Engine Miléage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs., Handled.	Average Rate of Speed of Passenger Trains.— Miles per hour.	Average Rate of Speed of Freight Trains.— Miles per hour.	Number.	Remarks.
46,804,510	9,179,159	12,929,630	.....	.....	...	
.....	8,190	26,747	.....	.....	37	
538,812	169,881	156,331	25	15	38	
67,106	83,525	46,854	20	15	39	
24,041	7,688	12,006	20	14	40	
61,822	29,910	20,070	17	.....	41	
192,237	101,595	74,617	22	14	42	
47,688,528	9,579,948	13,266,255	.....	.....		

## No. 5--SUMMARY STATEMENT OF

Number.	Name of Railway.	Mileage.	Flour.		Grain.	
			Barrels.	Tons.	Bushels.	Tons.
1	Albert .....	48·00	5,897	589	20,193	344
2	Bay of Quinté and Navigation Co. ....	3·50	18,676	1,867	109,533	3,286
3	Canada Atlantic .....	80·00				
4	Canada Southern .....	345·13		155,244		436,859
5	Canadian Pacific .....	1,780·00	213,528	21,100	3,213,085	61,170
6	Carillon and Grenville .....	13·00				
7	Central Ontario .....	32·00				
8	Chatham Branch .....	9·00				
9	Cobourg, Peterboro' and Marmora .....	15·00			57,200	1,430
10	Credit Valley .....	183·50		21,940		30,937
11	Fredericton .....	22·50	28,125		3,050	52
12	Grand Southern .....	82·50				
13	Grand Trunk .....	887·00				
	Buffalo and Lake Huron .....	162·00				
	Georgian Bay and Lake Erie .....	171·50				
	Montreal and Champlain Junction .....	27·25				
	Great Western Division—					
	Great Western .....	593·97	2,152·19			
	London and Port Stanley .....	23·75				
	Wellington, Grey and Bruce .....	168·25				
	London, Huron and Bruce .....	69·00				
	Brantford, Norfolk and Port Burwell .....	34·75				
	Welland .....	14·83				
14	Halifax and Cape Breton Railway and Coal Co. ....	79·75		3,232		109
15	Intercolonial .....	840·00	983,916	98,381	1,195,601	24,212
16	International .....	66·96				
17	Kent and Northern .....	27·00				
18	Kingston and Pembroke .....	81·00	500	50	114,700	2,952
19	Manitoba and North-Western .....	79·00				
20	Manitoba and South-Western .....	50·70				
21	Massawippi Valley .....	34·00				
22	Midland .....	139·03				
	Toronto and Nipissing .....	104·35				
	Grand Junction .....	88·10	470·43	125,183	12,518	5,773,618
	Whitby and Haliburton .....	99·84				115,470
	Toronto and Ottawa .....	30·32				
	Medonté Tramway .....	8·59				
23	Montreal and Vermont Junction .....	23·60				
24	Montreal and Sorel .....	46·09				
25	New Brunswick .....	174 }	301·00			
	New Brunswick and Canada .....	127 }				
26	North Shore .....	209·00	105,066	10,506	246,903	7,407
27	Northern and North-Western .....	386·04	243,964	24,397	4,725,288	141,579
28	Petitcodiac and Elgin .....	14·00				
29	Prince Edward Island .....	198·50	34,540	3,456	361,383	6,282
30	Quebec and Lake St. John .....	36·00				
31	Quebec Central .....	146·00	45,168	4,517	31,576	789
32	Stanstead, Shefford and Chambly .....	43·00				
33	St. John and Maine .....	92·00				
34	St. Lawrence and Ottawa .....	59·00		1,670		9,747
35	St. Martin's and Upham .....	29·12	500	50	35	1
36	South Eastern .....	152 }				
	Lake Champlain and St. Lawrence Junction .....	63 }	260·00	224,970	22,497	23,753
	Montreal, Portland and Boston .....	45 }				
37	Spring Hill and Parrsboro' .....	32·00	1,500	150		
38	Toronto, Grey and Bruce .....	191·50	84,279	8,374	1,153,753	31,826
39	Welland .....	25·00	50,460	5,046	198,640	5,762
40	Waterloo and Magog .....	23·00 }	33·10	2,222	222	21,182
	Missisquoi Valley .....	10·10 }				370
41	Western Counties .....	67·00	7,290	729	2,412	42
42	Windsor and Annapolis .....	84·00 }	116·00		4,822	
	Windsor Branch .....	32·00 }				

## Description of Freight Carried.

Live Stock.		Lumber of all kinds except Firewood.		Firewood.		Manu- factured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
No.	Tons.	Feet	Tons.	Cords	Tons.	Tons.	Tons.	Tons.		
1,266	502	11,220,800	14,026	1,273	1,955	984	14,547	32,948	1	
12	10	1,304,000	2,608			751		8,342	2	
								43,452	3	No details.
	74,679				267,203	149,135	1,055,239	2,138,359	4	
79,295	27,516	266,744,097	371,870	61,736	93,209	229,491	260,916	1,065,272	5	
								2,200	6	No details.
									7	No information.
									8	
		12,365,000	18,540	320	640		35	20,645	9	
	9,564		22,014		10,687	3,953	101,613	200,708	10	
160	110	100,000	120	1,287	1,287	6,913		11,295	11	
									12	Not run by Co'y.
								5,522,502	13	No details.
									14	
	1,299		4,646			545	9,049	18,880	15	
68,338	12,958	104,633,417	130,792	6,496	12,992	278,842	412,774	970,961	16	No information.
									17	Opened for traffic,
320	168	31,930,000	41,509	6,832	11,712	18,896	30,054	105,341	18	1st Nov., 1883.
									19	
								90,361	20	
									21	No details.
11,984	7,790	142,142,000	177,680	18,780	26,830	43,665	130,995	514,918	22	
								689,321	23	No details.
									24	No information.
									25	do
9,545	4,772½	13,827,750	24,198½	9,626	38,504	31,921½	66,054	183,363½	26	
32,952	16,476	167,934,864	218,918	19,746	32,585	101,506	61,339	596,800	27	
								8,765	28	No details.
4,245	1,012	2,817,287	7,772	3,159	5,969	27,429	*	51,920	29	*Included in last
		2,830,000	5,506		8,800		5,781	20,090	30	item.
4,471	1,040	20,853,000	29,798			2,534	21,130	59,808	31	
								36,393	32	No details.
								57,306	33	do
	354		19,315			13,673	12,449	57,208	34	
4	2		5,802	50	55	5	160	6,075	35	
	4,218		26,913				113,414	190,795	36	
		8,360,000	10,450				16,147	26,747	37	
26,863	7,756		16,034	21,484	40,406	26,400	26,075	156,331	38	
40	24		7,416			5,996	22,610	46,854	39	
2	½	2,727,000	3,353	1,160	1,160	1,140	5,761	12,006½	40	
283	130	8,947,700	11,180	2,595	3,892	1,187	2,910	20,070	41	
12,217	2,325	13,492,410	16,894	1,575	2,266	13,847	34,460	74,617	42	

## No. 6.—SUMMARY STATEMENT of Earnings.

Number.	Name of Railway.	Mileage.	Passenger Traffic.		Freight Traffic.		Mails and Express Freight.		Other Sources.		Total.		Remarks.
			\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	
1	Albert .....	48-00	7,003	98	15,762	21	1,126	80	416	00	24,208	99	
2	Bay of Quinté and Navigation Co. ....	3-50	1,479	04	5,087	76	794	33	45	05	7,406	18	
3	Canada Atlantic .....	80-00	54,765	59	51,318	96	3,471	61			109,556	16	
4	Canada Southern .....	345-13	810,010	75	2,715,336	42	61,612	71	2,165	45	3,589,125	33	
5	Canadian Pacific .....	1,780-00	1,429,904	27	3,112,931	97	95,012	59	53,502	95	4,491,351	78	
6	Carillon and Grenville .....	13-00	3,956	95	2,193	60			72	65	6,223	20	
7	Central Ontario .....	32-00	15,741	38	8,607	31	960	64			25,309	33	
8	Chatham Branch .....	9-00	1,598	55	7,517	21	1,379	84	1,000	00	11,405	60	
9	Cobourg, Peterboro' and Marmora .....	16-00	1,893	10	13,940	61					15,833	71	
10	Credit Valley .....	183-50	180,703	01	245,127	19	19,019	50	4,700	00	449,549	70	
11	Fredricton .....	22-50	13,446	32	9,071	95	2,070	20			24,588	47	
12	Grand Southern .....	82-50											Not operated by Com- pany.
13	Grand Trunk .....												
	Buffalo and Lake Huron .....		887	00									
	Georgian Bay and Lake Erie ...		162	00									
	Montreal and Champlain Junction .....		171	50									
	Great Western Division:—												
	Great Western .....		593	97									
	London and Port Stanley ...		23	75									
	Wellington, Grey and Bruce ...		188	25									
	London, Huron and Bruce ...		69	00									
	Brantford, Norfolk and Port Burwell .....		34	75									
	Welland .....		14	83									
14	Halifax and Cape Breton Railway and Coal Co. ....								78,320	08	16,001,537	98	
15	Intercolonial .....	79-75	39,235	54	25,083	28	10,266	82			74,585	64	
16	International .....	840-00	741,992	72	1,487,601	98	131,942	62	9,383	78	2,370,921	10	
17	Kent Northern .....	69-66	18,032	30	39,878	25	2,591	64			60,502	19	
		27-00											Opened for traffic on 1st November, 1883.
18	Kingston and Pembroke .....	81-00	26,477	95	84,959	56	4,054	88	15,133	75	130,626	14	
19	Manitoba and Northwestern .....	79-00											Not in regular operation.

	50-00 34-00	77,485 01	119,726 82	7,630 81	2,808 58	207,661 22	do do
20 Manitoba and Southwestern.....							
21 Mississippi Valley.....							
22 Midland.....							
Toronto and Nipissing.....	139-03						
Grand Junction.....	104-55						
Whitby and Haliburton.....	88-10						
Toronto and Ottawa.....	59-84						
Medonté Tramway.....	30-32						
Montreal and Vermont Junction.....	8-59						
23 Montreal and Sorel.....							
24 Montreal and Sorel.....							
25 New Brunswick.....							
New Brunswick and Canada.....	174-00						
26 North Shore.....	137-00						
27 Northern and Northwestern.....							
28 Petcodiac and Elgin.....							
29 Prince Edward Island.....							
30 Quebec and Lake St. John.....							
31 Quebec Central.....							
32 Stanstead, Shefford and Chambly.....							
33 St. John and Maine.....							
34 St. Lawrence and Ottawa.....							
35 St. Martin and Upham.....							
36 Southeastern.....							
Lake Champlain and St. Lawrence.....	152-00						
Montreal, Portland and Boston.....	63-00						
37 Spring Hill and Parisboro.....	45-00						
38 Toronto, Grey and Bruce.....							
39 Welland.....							
40 Waterloo and Magog.....							
Missisquoi Valley.....	23-00						
Western Counties.....	10-10						
41 Windsor and Annapolis.....							
42 Windsor and Annapolis.....							
Windsor Junction.....	84-00						
Windsor Junction.....	32-00						
8,805-62		10,538,119 67	21,320,208 62	1,108,429 20	261,423 86	33,244,536 00	

No details.

## No. 7.—SUMMARY STATEMENT of Operating Expenses.

Number.	Name of Railway.	Mileage.	Maintenance of Line, Buildings, &c.		Working and Repairs of Engines.		Working and Repairs of Cars.		General Operating Ex- penses.		Total.	Remarks.
			\$	cts.	\$	cts.	\$	cts.	\$	cts.		
1	Albert .....	48-00	7,419	80	8,299	32	2,102	42	5,266	33	23,087	87
2	Bay of Quinté and Navigation Company .....	3-50	450	00	3,365	40			3,712	18	7,527	58
3	Canada Atlantic .....	80-00										
4	Canada Southern .....	345-13	274,667	68	514,427	30	231,560	19	1,288,056	71	2,308,711	88
5	Canadian Pacific .....	1780-00	590,937	15	1,693,745	20	258,309	58	1,410,476	08	3,953,468	01
6	Carillon and Grenville .....	13-00										
7	Central Ontario .....	32-00	6,099	11	7,131	77	1,140	31	5,418	73	6,094	67
8	Chatham Branch .....	9-00									19,759	90
9	Cobourg, Peterboro' and Marmora .....	15-00	2,410	00	6,692	00	530	00	6,350	00	15,982	00
10	Credit Valley .....	183-40	59,464	72	114,229	29	19,134	49	151,192	84	344,021	34
11	Fredericton .....	23-50	7,353	69	8,150	26	650	50	4,179	65	20,334	10
12	Grand Southern .....	82-50										
13	Grand Trunk .....	837-00										
	Buffalo and Lake Huron .....	102-00										
	Georgian Bay and Lake Erie .....	171-50										
	Montreal & Champlain Junction .....	27-25										
	Great Western Division .....											
	Great Western .....	593-97										
	London and Port Stanley .....	23-75										
	Wellington, Grey and Bruce .....	168-25										
	London, Huron and Bruce .....	69-00										
	Brantford, Norfolk and Port Bur- well .....											
	Welland .....	34-75										
	Welland .....	14-83										
14	Halifax & Cape Breton Railway and Coal Co.	79-75	22,571	02	21,583	85	6,972	28	32,651	24	83,778	39
15	Intercolonial .....	840-00	580,036	14	767,062	65	254,281	19	759,023	29	2,369,373	27
16	International .....	69-66	14,616	72	11,399	56			17,141	00	43,157	28
17	Kent Northern .....	27-00										
19	Kingston and Pembroke .....	81-00	39,130	48	46,755	56	9,451	77	19,729	74	115,067	55
19	Manitoba and Northwestern .....	79-00										
20	Manitoba and Southwestern .....	50-70										
21	Massawippi Valley .....	34-00	52,266	28								
					53,123	38			48,330	81	153,720	47

Opened 1st Nov., 1883.

Not in regular operation.

do

\* Included in foregoing.

10 *a*-3

## No. 8.—SUMMARY

Number.	Name of Railway.	Mileage.	Passengers, Employés or Others.	Fell from cars or engines.		Jumping on or off trains or engines when in motion.		At work on or near track making up trains		Putting arms or heads out of window.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1	Albert.....	48·00									
2	Bay of Quinté Navigation Co. ...	3·50									
3	Canada Atlantic.....	80·00	{ Passengers .....								
			{ Employés.....								
4	Canada Southern.....	345·13	{ Passengers.....		1		1				
			{ Employés.....	3	6		1		2		
			{ Others.....		1						
5	Canadian Pacific.....	1,780·00	{ Passengers.....				2				
			{ Employés.....		6			2	1		
			{ Others.....			1	1				
6	Carillon and Grenville.....	13·00	Others.....								
7	Central Ontario.....	32·00	Others.....								
8	Chatham Branch.....	9·00									
9	Cobourg, Peterboro' and Marmora	15·00									
10	Credit Valley.....	188·50	{ Passengers.....				1				
			{ Employés.....								
			{ Others.....								
11	Fredericton.....	22·50									
12	Grand Southern.....	82·50									
13	Grand Trunk and leased lines... }	2,152·19	{ Passengers.....		2	1	4				
	Great Western Division..... }		{ Employés.....	8	32	2	19	3			
			{ Others.....	3	5	3	2				
14	Halifax and Cape Breton Railway and Coal Co.....	79·75	Employés.....		1						
15	Intercolonial.....	840·00	{ Passengers.....	1			1				
			{ Employés.....	5	9	2	4				
			{ Others.....								
16	International.....	69·66									
17	Kent Northern.....	27·00									
18	Kingston and Pembroke....	81·00									
19	Manitoba and South-Western.....	79·00									
20	Manitoba and North-Western.....	79·00									
21	Massawippi Valley.....	34·00									
22	Midland and associated lines.....	470·40	{ Employés.....		1						
			{ Others.....								
23	Montreal and Vermont Junction...	23·60									
24	Montreal and Sorel.....	46·00									
25	New Brunswick.....	301·00	{ Employés.....					2	1		
	New Brunswick and Canada. }		{ Others.....								
26	Northern and North-Western .....	386·04	{ Passengers.....	1	1						
			{ Employés.....		3			1	1		
			{ Others.....								
27	North Shore.....	209·00	{ Passengers.....			1					
			{ Employés.....	2				2			
28	Petitcodiac and Elgin.....	14·00									
29	Prince Edward Island.....	195·80	{ Passengers.....								
			{ Others.....								
30	Quebec and Lake St. John.....	36·60	{ Passengers.....			1					
			{ Employés.....					1			
			{ Employés.....								
31	Quebec Central.....	146·00	{ Others.....								
32	Stanstead, Shefford and Chambly	43·00									
33	St. John and Maine.....	92·00	Employés.....	1				1			
34	St. Lawrence and Ottawa.....	59·00									
35	St. Martin's and Upham.....	29·12									
36	South-Eastern and leased lines....	260·00	{ Employés.....		5		2		1		
			{ Others.....				1				
Carried forward .....				24	73	11	39	12	6		

## OF ACCIDENTS.

Coupling cars.		Collisions, or by trains thrown from track.		Walking, standing, lying or being on track.		Explosions.		Striking bridges.		Other causes.		Totals.		Number.	Remarks.
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	
.....	.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	1	3	3	
.....	.....	.....	10	.....	.....	.....	.....	.....	.....	1	.....	1	12	.....	
1	11	.....	1	.....	2	.....	.....	3	1	.....	8	7	32	4	
.....	.....	.....	2	.....	3	.....	.....	.....	.....	.....	.....	3	8	.....	
.....	.....	.....	2	.....	5	.....	.....	.....	.....	.....	.....	.....	4	.....	
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	
1	15	1	3	.....	1	.....	.....	.....	.....	1	8	5	34	5	
.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	7	1	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	6	
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	7	
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	8	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	10	
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	
.....	.....	.....	8	.....	1	.....	.....	.....	.....	.....	.....	1	1	16	
1	161	2	12	2	3	.....	1	2	2	.....	55	20	285	13	
.....	.....	.....	.....	50	19	.....	.....	.....	.....	.....	.....	56	26	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	3	14	
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	1	3	.....	
2	48	4	1	3	2	.....	.....	.....	.....	7	16	71	15	.....	
.....	.....	.....	8	2	.....	.....	.....	.....	.....	1	.....	9	2	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18	Opened for traffic
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19	1st Nov., 1883.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	
.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	
.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	24	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	25	
.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	1	1	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
.....	5	.....	1	1	1	.....	.....	.....	1	.....	1	2	13	26	
.....	.....	.....	3	2	.....	.....	.....	.....	.....	3	2	6	4	.....	
.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	
.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	27	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28	
.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	29	
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	30	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	
.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	31	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	33	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	36	
.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	
.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
5	245	9	52	84	42	.....	.....	1	5	4	11	85	161	547	

## No. 8.—SUMMARY OF

Number.	Name of Railway.	Mileage.	Passengers, Employés or Others.	Fell from cars or engines.		Jumping on or off trains or engines when in motion.		At work on or near track making up trains		Putting arms or heads out of window.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
	Brought forward.....			24	73	11	39	12	6	.....	.....
37	Spring Hill and Parrsboro' .....	32·00									
38	Toronto, Grey and Bruce.....	191·50	{ Employés. ....		1						
			{ Others .....								
39	Welland.....	25·00									
40	Waterloo and Magog.....	33·10									
41	Western Counties.....	67·00	Others.....								
42	Windsor and Annapolis.....	116·00	{ Passengers....		1						
	Windsor Branch.....		{ Employés ....								
	Total.....	8,805·59		24	74	12	39	12	6	.....	.....

ACCIDENTS—Concluded.

Coupling cars.		Collisions, or by trains thrown from track.		Walking, standing, lying or being on track.		Explosions.		Striking bridges.		Other causes.		Totals.		Number.	Remarks.
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
5	245	9	52	84	42	.....	1	5	4	11	85	161	547	.....	
.....	1	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	3	2	37	
.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2	.....	38	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40	
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	41	
.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	1	42	
.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	
5	246	9	52	91	43	.....	1	5	4	11	85	169	550	.....	

No. 9.—Lines of Railway owned by Coal and Iron Mines.

Name,	Length of Rail-way.	Gauge.	Number of En-gines.	Number of Wag-gons.	Remarks.
NOVA SCOTIA.					
Intercolonial .....	10·00	4·8½	2	88	Cars furnished by Intercolonial Railway. Business done with Intercolonial Railway, Grand Trunk Railway and W. and A. cars. Waggons supplied by Intercolonial Railway and Spring Hill and Parrsboro' Railway.
Nova Scotia Coal Co.....	6·75	5·6	2	78	
Vale Coal and Iron Co.....	6·00	4·8½	2	.....	
Acadia Coal Co .....	3·00	4·8½	2	2	
Spring Hill.....	5·00	4·8½	3	.....	
Steel Company of Canada...	14·25	4·8½ & 3	5	72	
Albion Mines.....	5·50	4·8½	3	300	
	50·50		19	540	
					Gauge. Miles.
					5 ft. 6 in. 6·75
					4 " 8½ " 40·75
					3 " 0 3·00
					Total..... 50·50
CAPE BRETON.					
New Campbellton.....	5·00	4·8½	1	44	Also one passenger car. 1½ miles in course of construction.
Glace Bay.....	·52	4·8½	1	235	
Sydney.....	4·80	4·8½	2	165	
Sydney and Louisburg.....	41·00	3·0	3	200	
Gowrie.....	1·50	3·6	2	103	
International .....	13·00	4·8½	3	173	
Lingan.....	1·00	3·6	1	50	
Victoria.....	3·75	4·8½	1	40	
Caledonia .....	2·25	4·8½	1	70	
	72·82		15	1,080	
					Gauge. Miles.
					4 ft. 8½ in. 29·32
					3 " 6 " 2·50
					3 " 0 41·00
					Total..... 72·82

## No. 10—STATEMENT of Aid granted to Railways by Governments.

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<b>DOMINION GOVERNMENT.</b>						
Canada Central .....			1,440,500 00			
Canadian Pacific .....			53,156,528 00			
Grand Trunk .....	15,142,633 43					
Great American and European Short Line.....			460,000 00			
Intercolonial.....			41,176,654 19			
Prince Edward Island.....			3,523,692 62			
Quebec and Lake St. John.....			464,000 00			
Toronto, Grey and Bruce.....			2,656 00			
Windsor and Annapolis .....			1,089,674 00			
		15,142,633 33		101,313,804 81		
<b>ONTARIO GOVERNMENT.</b>						
Canada Atlantic.....			270,000 00			
Canada Southern.....			147,858 65			
Central Ontario .....			126,500 00			
Cobourg, Peterboro' and Marmora.....			44,740 00			
Credit Valley.....			457,500 00			
Erie and Huron.....			80,000 00			
Grand Junction.....			132,500 00			
Georgian Bay and Lake Erie.....			336,000 00			
Hamilton and North-Western .....			565,020 00			
Kingston and Pembroke .....			453,522 50			
London, Huron and Bruce.....			178,630 08			
Midland.....			168,350 20			
Napanee, Tamworth and Quebec.....			89,600 00			
Northern.....			196,800 00			
Toronto and Nipissing .....			105,212 00			
Lake Simcoe Junction.....			53,000 60			
Toronto, Grey and Bruce.....			375,282 00			
Victoria.....			312,000 00			
Wellington, Grey and Bruce.....			241,276 00			
Whitby, Port Perry and Lindsay .....			94,957 59			
		15,142,633 33		4,478,749 02		
Carried forward.....				105,792,553 83		

No. 10.—STATEMENT of Aid granted to Railways by Government—Concluded.

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Share or Bonds.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	.....	15,142,633 33	.....	105,792,553 83	.....	.....
QUEBEC GOVERNMENT.						
International.....	.....	.....	364,536 22	.....	.....	.....
Lake Champlain and St. Lawrence.....	.....	.....	380,000 00	.....	.....	.....
*Lévis and Kennebec.....	.....	.....	.....	.....	.....	.....
Missisquoi Valley.....	.....	.....	228,000 00	.....	.....	.....
Montreal, Portland and Boston.....	.....	.....	197,582 00	.....	.....	.....
North Shore.....	.....	.....	.....	.....	.....	.....
Pontiac and Pacific Junction.....	3,500,000 00	.....	468,000 00	.....	.....	.....
Quebec and Lake St. John.....	.....	.....	850,000 00	.....	.....	.....
Quebec Central.....	.....	.....	861,250 00	.....	.....	.....
Quebec, Montreal, Ottawa and Occidental.....	.....	.....	4,227,000 00	.....	.....	.....
South-Eastern.....	.....	.....	444,000 00	.....	.....	.....
Waterloo and Magog.....	2,616,956 00	6,116,956 00	92,000 00	.....	100,000 00	100,000 00
NEW BRUNSWICK GOVERNMENT.						
Albert.....	.....	.....	455,000 00	.....	.....	.....
Chatham Branch.....	.....	.....	32,000 00	.....	.....	.....
Fredericton.....	.....	.....	230,000 00	.....	.....	.....
Grand Northern.....	.....	.....	412,500 00	.....	.....	.....
Kent Northern.....	.....	.....	135,000 00	.....	.....	.....
New Brunswick.....	.....	.....	56,000 00	.....	.....	.....
New Brunswick and Canada.....	.....	.....	575,000 00	.....	.....	.....
Petitcodiac and Elgin.....	.....	.....	70,000 00	.....	.....	.....
St. Martins and Upham.....	.....	.....	150,000 00	.....	.....	.....
St. John and Maine.....	.....	.....	†880,000 00	3,015,500 00	†300,000 00	300,000 00

NOVA SCOTIA GOVERNMENT.

Halifax and Cape Breton Railway and Coal Company.....  
 Nova Scotia, Nictaux and Atlantic.....  
 Spring Hill and Painsboro'.....  
 Western Counties.....

643,545 00  
 440,000 00  
 144,230 00  
 679,100 00

1,906,875 00

21,259,589 33

118,827,297 05

400,000 00

\* Included in Quebec Central.

† Granted to late European and North American Railway.

## No. 10.—STATEMENT of Aid granted to Railways by Municipalities, &amp;c.

Municipalities.	Name of Railway.	Loan.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
ONTARIO.						
Township of Deseronto.....	Bay of Quinté and Navigation Company.....	.....	5,500 00	.....	.....	.....
do Rambridge.....	Canada Atlantic.....	.....	20,000 00	.....	.....	.....
do Russell.....	do .....	.....	10,000 00	.....	.....	.....
City of Ottawa.....	do .....	.....	100,000 00	.....	.....	.....
Renfrew .....	Canada Central.....	.....	.....	130,000 00	30,000 00	.....
Norton .....	do .....	.....	.....	.....	7,000 00	.....
Adamstown.....	do .....	.....	.....	.....	5,000 00	.....
Pembroke.....	do .....	.....	75,000 00	.....	.....	42,500 00
County of Elgin .....	Canada Southern .....	.....	200,000 00	.....	.....	.....
Township of Townsend .....	do .....	.....	30,000 00	.....	.....	75,000 00
do Durham .....	do .....	.....	15,000 00	.....	.....	.....
do Anderson.....	do .....	.....	15,000 00	.....	.....	.....
Town of St. Thomas .....	do .....	.....	25,000 00	.....	.....	.....
Township of Malten .....	do .....	.....	15,000 00	.....	.....	.....
Town of Amherstburg.....	do .....	.....	15,000 00	.....	.....	.....
South Norwich.....	do .....	.....	7,500 00	.....	.....	.....
Northumberland and Durham Savings Bank.....	Cobourg, Peterboro' and Morris .....	.....	113,500 00	.....	.....	322,500 00
Trenton Village.....	Central Ontario.....	.....	10,000 00	.....	.....	.....
Wellington Village.....	do .....	.....	2,500 00	.....	.....	113,500 00
Town of Picton.....	do .....	.....	21,000 00	.....	.....	.....
County of Prince Edward .....	do .....	.....	60,000 00	.....	.....	.....
do Oxford.....	Credit Valley .....	.....	200,000 00	.....	.....	93,500 00
do Wellington .....	do .....	.....	135,000 00	.....	.....	.....
do Waterloo.....	do .....	.....	110,000 00	.....	.....	.....

[illegible]



47

## No. 10—STATEMENT of Aid granted to Railways by Municipalities, &amp;c.—Continued.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
ONTARIO—Continued.							
Town of Lindsay .....	Brought forward .....						
Village of Fenelon Falls .....	Victoria .....			85,000 00	6,696,149 44		682,500 00
Verulam and Somerville .....	do .....			25,000 00			
County of Haliburton .....	do .....			22,000 00			
				54,000 00			
Fergus .....	Wellington, Grey and Bruce .....			10,000 00	186,000 00		
Peel .....	do .....			40,000 00			
Elora .....	do .....			10,000 00			
Maryboro' .....	do .....			40,000 00			
Nichol .....	do .....			10,000 00			
Wallace .....	do .....			35,000 00			
Minto .....	do .....			65,000 00			
Bruce .....	do .....			278,000 00			
Howick .....	do .....			20,000 00			
Listowell .....	do .....			15,000 00			
Grey .....	do .....			35,000 00			
Elma .....	do .....			30,000 00			
Morris .....	do .....			30,000 00			
W. Wawanosh .....	do .....			18,000 00			
Ashfield .....	do .....			10,000 00			
Turnberry .....	do .....			28,000 00			
Kincardine .....	do .....			8,000 00	682,000 00		
Town of Whitby .....	Whitby, Port Perry and Lindsay .....			70,000 00		10,000 00	
Township of Whitby .....	do .....			15,000 00			
do Reach .....	do .....			30,000 00			
do Scugog .....	do .....			2,000 00			
County of Victoria .....	do .....			85,000 00			
Village of Port Perry .....	do .....			20,000 00			
Brown & Patterson, Manufacturing Company .....	do .....			94 93	222,094 93		10,000 00
							592,500 00

QUEBEC.									
County of Compton.....	International.....							225,000 00	225,000 00
St. Pie.....	Lake Champlain & St. Lawrence						20,000 00		
L'Ange Gardien..	do						10,000 00		
St. Paul.....	do						6,000 00		
Not stated.....	do						15,000 00		
Ascot.....	Massawippi Valley.....							51,000 00	
Hatley.....	do								40,000 00
Township of Melbourne & Bromp-									25,000 00
ton Gore.....	Missisquoi & Black River Valley								25,000 00
Township of Ely.....	do								20,000 00
do	do								20,000 00
do Bolton.....	do								20,000 00
Chambly Canton.....	Montreal, Portland and Boston...						15,000 00		
do Basin.....	do						10,000 00		
Not stated.....	Quebec Central.....						168,000 00		
City of Quebec.....	Quebec and Lake St. John.....							25,000 00	
Not stated.....	Pontiac and Pacific Junction.....							168,000 00	
City of Montreal.....	Quebec, Montreal, Ottawa and								450,000 00
	Occidental.....						100,000 00		
City of Quebec.....	do	1,000,000 00							
do Three Rivers.....	do	1,000,000 00							
County of Ottawa.....	do	100,000 00							
St. Saurer de Quebec.....	do	200,000 00							
Côte St. Louis.....	do	25,000 00							
Village of St. Thérèse.....	do	25,000 00							
Parish of	do	12,000 00							
do St. Jérôme.....	do	12,000 00							
Village of	do	10,000 00							
St. Scholastique.....	do	16,000 00							
St. Andrews.....	do	10,000 00							
St. Jerusalem of Argenteuil.....	do	25,000 00							
							25,000 00		
L'Avenir.....	South Eastern.....	2,434,000 00							
County of Brome.....	do								50,000 00
Township of Brome.....	do								50,000 00
do Sutton.....	do								63,000 00
do Potton.....	do								25,000 00
	Carried forward.....	2,434,000 00						369,000 00	188,000 00
									825,000 00

No. 10.—STATEMENT of Aid granted to Railways by Municipalities, &amp;c.—Continued.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
QUEBEC—Concluded.							
	Brought forward .....		2,434,000 00		369,000 00	188,000 00	825,000 00
Township of Farham .....	South-Eastern .....					20,000 00	
Village of West Farnham .....	do .....					5,000 00	
do East do .....	do .....					5,000 00	
do Waterloo .....	do .....					30,000 00	
do Drummondville .....	do .....					15,000 00	
County of Drummond .....	do .....					90,000 00	
Township of Wickham .....	do .....					10,000 00	
do St. Germin .....	do .....					15,000 00	
do Sorel .....	do .....					40,000 00	
Village of Actonville .....	do .....					15,000 00	
do Roxton Falls .....	do .....					15,000 00	
Township of Roxton .....	do .....					20,000 00	
do Sheffield .....	do .....					50,000 00	
do West Wickham .....	do .....					10,000 00	
Municipality of Magog .....	Waterloo and Magog .....				15,000 00		528,000 00
NEW BRUNSWICK.							
Hillsboro', Hopewell, and Harvey Parishes .....	Albert .....		2,434,000 00		384,000 00		1,353,000 00
Oversdale, Hillsboro', Hopewell, and Harvey Parishes .....	do .....			40,000 00			
	do .....			30,000 00			
City of Fredericton .....	Fredericton .....			50,000 00			
County of York .....	do .....			30,000 00			
Parish of St. George .....	Grand Southern .....	2,000 00					
do Pennfield .....	do .....	500 00					
Lepreaux .....	do .....	500 00	3,000 00				

10 a—1

No. 10.—STATEMENT of Aid granted to Railways by Governments and Municipalities—*Concluded.*  
SUMMARY.

	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total	Grand Totals.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.
<i>Governments.</i>								
Dominion .....	15,142,633 33	.....	101,313,804 81	.....	.....	.....	116,456,438 14	.....
Ontario .....	.....	.....	4,478,749 02	.....	.....	.....	4,478,749 02	.....
Quebec .....	6,116,956 00	.....	8,112,368 22	.....	100,000 00	.....	14,329,224 22	.....
New Brunswick .....	.....	.....	3,015,500 00	.....	303,000 00	.....	3,315,500 00	.....
Nova Scotia .....	.....	.....	1,906,875 00	.....	.....	.....	1,906,875 00	.....
	.....	21,259,589 33	.....	118,827,297 05	.....	400,000 00	140,486,886 38	.....
<i>Municipalities, &amp;c.</i>								
In Ontario .....	.....	.....	7,786,244 37	.....	592,500 00	.....	8,378,744 37	.....
Quebec .....	2,434,000 00	.....	384,000 00	.....	1,353,000 00	.....	4,171,000 00	.....
Nova Scotia .....	.....	.....	150,000 00	.....	100,000 00	.....	250,000 00	.....
New Brunswick .....	3,000 00	.....	233,500 00	.....	60,000 00	.....	296,500 00	.....
Manitoba .....	.....	.....	475,000 00	.....	.....	.....	475,000 00	.....
	.....	2,437,000 00	.....	9,028,744 37	.....	2,105,500 00	13,571,244 37	.....
	.....	23,696,589 33	.....	127,856,041 42	.....	2,505,500 00	151,058,130 75	.....

ADDENDA.

DEDUCTIONS from Traffic, &c., of Railways on mileage in United States.

Railways.	Train Mileage.	Grain Elevators.	Crossings Guarded.	Crossings Unguarded.	Overhead Bridges.	Crossings of other Railways.	Junctions with other Railways.	Locomotives.	Cars, 1st Class.	Passengers.	Freight, Tons.	Receipts. \$ cts.	Expenses. \$ cts.
Grand Trunk.....	1,267,844	1	2	1,867	32	6	25	73	33	163,704	192,872	1,431,469 53	1,245,945 69
Canada Southern.....	503,075			52	2	1	2			94,801	427,671	717,825 06	461,742 37
New Brunswick.....	20,367			12						7,496	17,076	44,402 20	26,827 10
South-Eastern.....	57,334			17						15,296	15,900	39,690 38	34,970 42
Total.....	1,848,620	1	2	1,948	34	7	27	73	33	281,297	653,519	2,233,378 16	1,769,445 58

ERRATA.—In Location of Lake Champlain and St. Lawrence J.a., page 11, read Passumpsic for Paumpac.













